4.3.2 System Interface

The System Interface section provides an overview of the features and functionalities offered by the Esteshari Telemedical System (ETS) for different user roles, including the system administrator, patients, and physicians. Patients can conveniently schedule and book appointments with physicians, update their medical histories, submit complaints, and access post-session assessments completed by physicians. Basic functions such as forget password, email verification, login, and registration are also available. Physicians, on the other hand, can fill out physician registration form, manage their schedules and finances, join patient appointments, view patient medical histories and complaints, and complete post-session assessments. System administrators have the authority to approve or disapprove physician registration requests, access the list of patients in the system, and view the list of physicians. During the implementation stage, a set of technology tools, techniques, and processes as identified in chapter 3 were utilized. The Model-View-Controller (MVC) design pattern was employed using the Laravel Framework as the foundation for implementing the system. The project source code, developed as part of this project, successfully fulfills the objective of creating the Esteshari Telemedical System.

4.3.2.1 Account Registration Panel

The account registration feature in the Esteshari Telemedical System allows physicians and patients to create their user accounts. During the registration process, users are prompted to specify their role as either a physician or a patient. They provide their name, email address, and password, along with a password confirmation to ensure accuracy. By selecting their role and providing the necessary information, users can successfully register and gain access to their respective accounts within the ETS platform. This feature establishes a secure foundation for users to engage with the system's functionalities based on their designated roles. The registration page is presented in Figure 4.6.

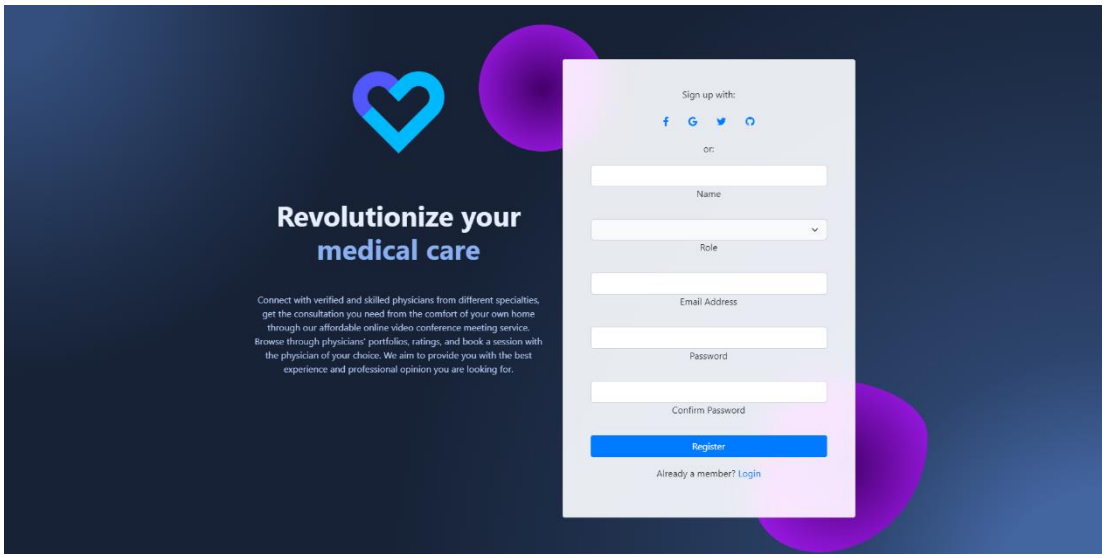

Figure 4.6 Account Registration Panel

4.3.2.2 Email Verification

The email verification feature in the Esteshari Telemedical System adds an additional layer of security and ensures the authenticity of user accounts. After completing the registration process, users receive an email containing a verification link to the email address provided during registration. They are required to click on the verification link to confirm their email address. This verification step is necessary before users can access and utilize any features within the system. By verifying their email address, users demonstrate their ownership and legitimacy of the registered account, contributing to the overall security and reliability of the ETS platform. The email verification page is displayed in Figure 4.7, and the email sample is displayed in Figure 4.8.

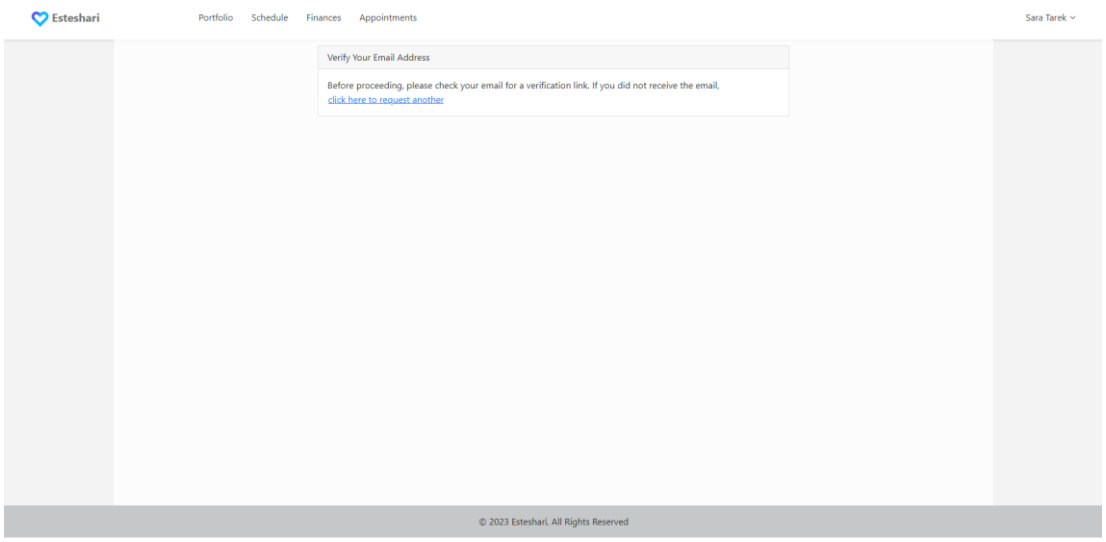

Figure 4.7 Verify Email Address Page

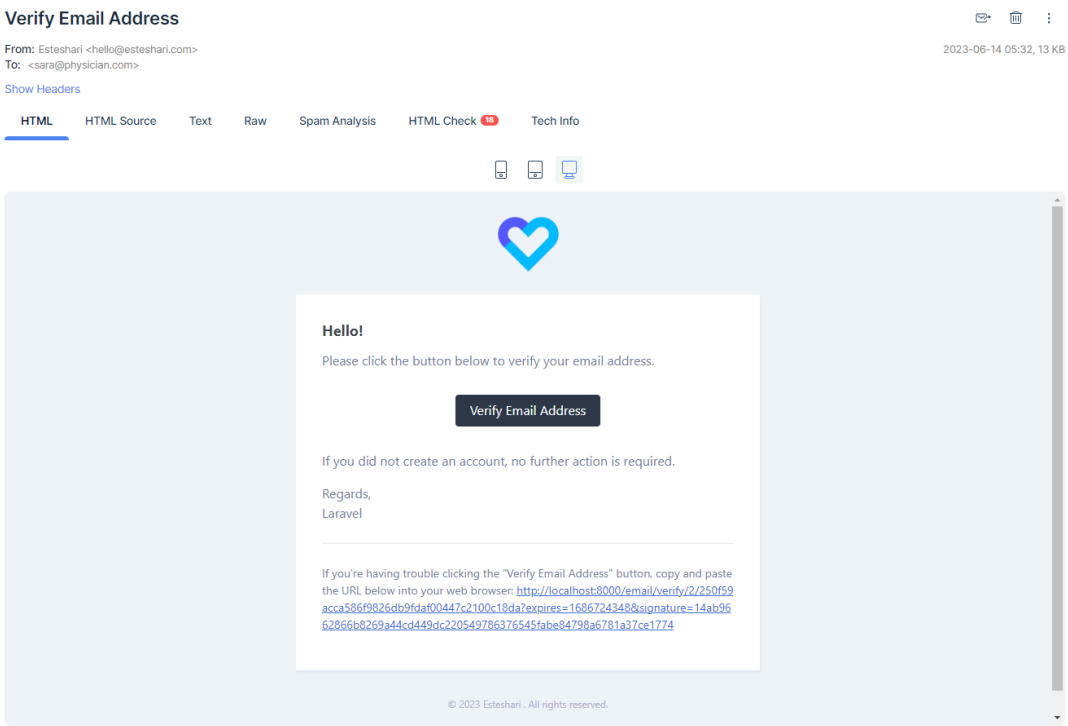

Figure 4.8 Verify Email Address Email

4.3.2.3 Account Login Panel

The login functionality in the Esteshari Telemedical System enables users, including patients, physicians, and system administrators, to securely access their respective views. Users can log in by entering their registered email and password, which they provided during the registration process. This authentication process

ensures that only authorized individuals can access the system and its associated features. By logging in, users gain access to personalized functionalities and information tailored to their specific roles within the ETS platform. The login panel is displayed in Figure 4.9.

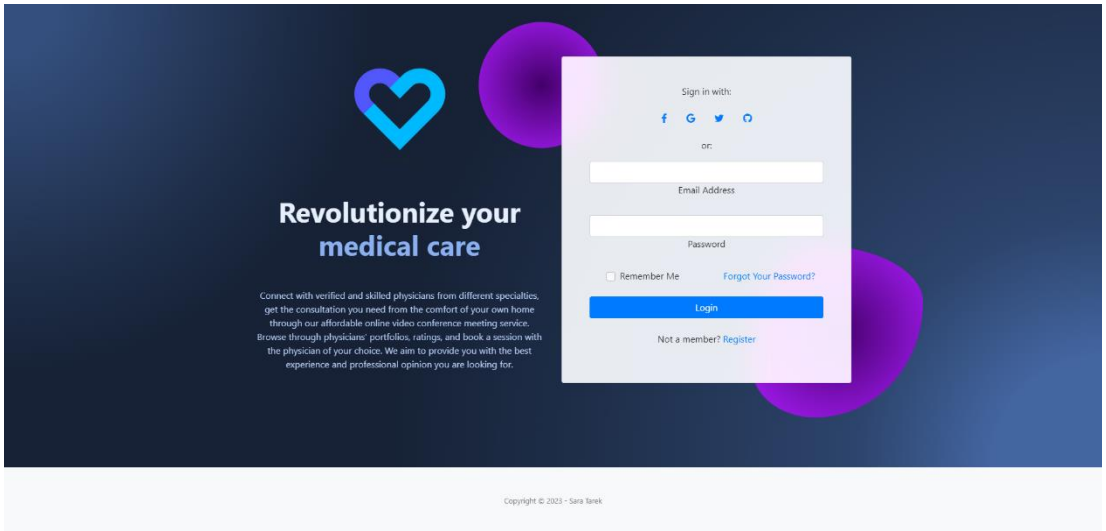

Figure 4.9 Login Page

4.3.2.4 Reset Password

The password reset functionality in the Esteshari Telemedical System offers a convenient solution for users who have forgotten their passwords. When users encounter difficulty accessing their accounts due to a forgotten password, they can utilize the reset password feature. By selecting the "Forgot Password" option, users are prompted to provide their registered email address as displayed in Figure 4.10. An email containing a password reset link is then sent to the provided email address. Users can click on the link in their email as shown in Figure 4.11 to be directed to a password reset page shown in Figure 4.12, where they can securely create a new password. This feature ensures that users can regain access to their accounts in the event of a forgotten password, maintaining a seamless user experience and upholding the security of their account information within the ETS platform.

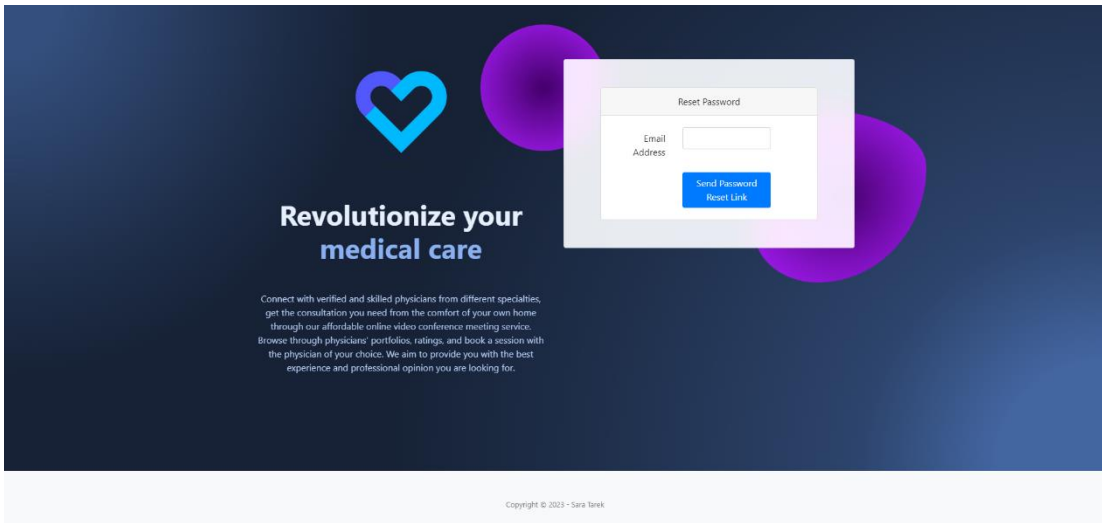

Figure 4.10 Password Reset Page

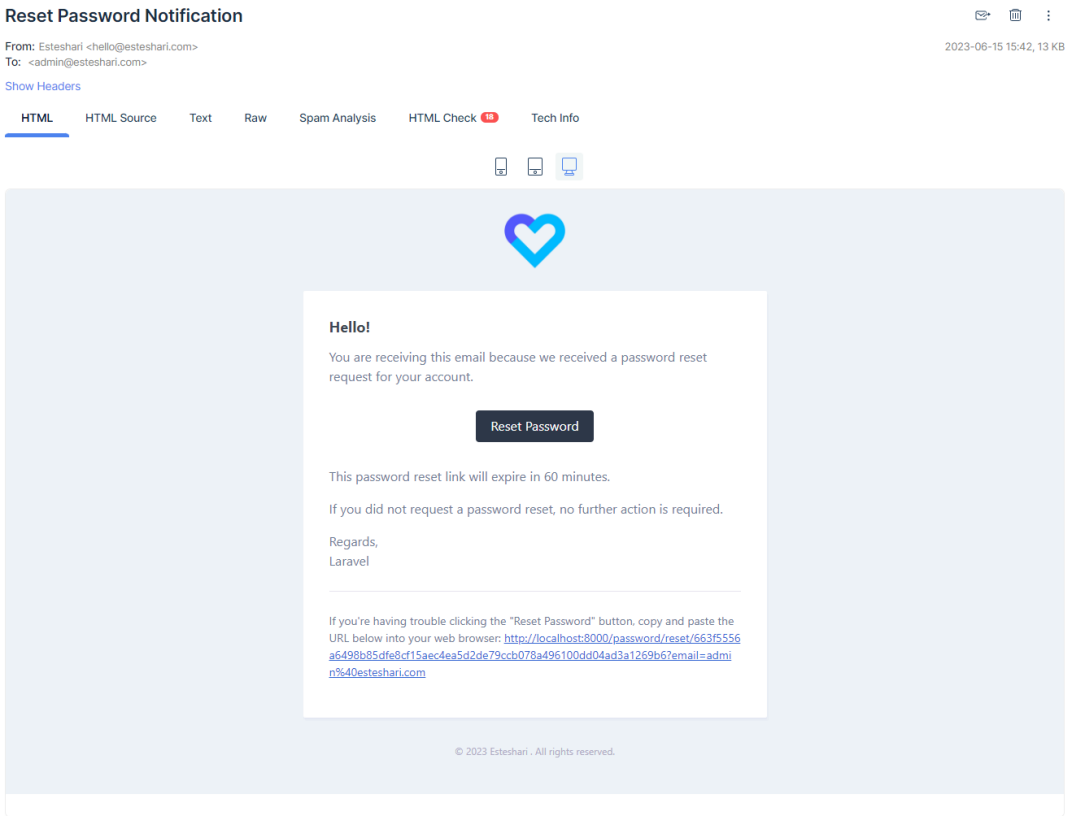

Figure 4.11 Password Reset Email

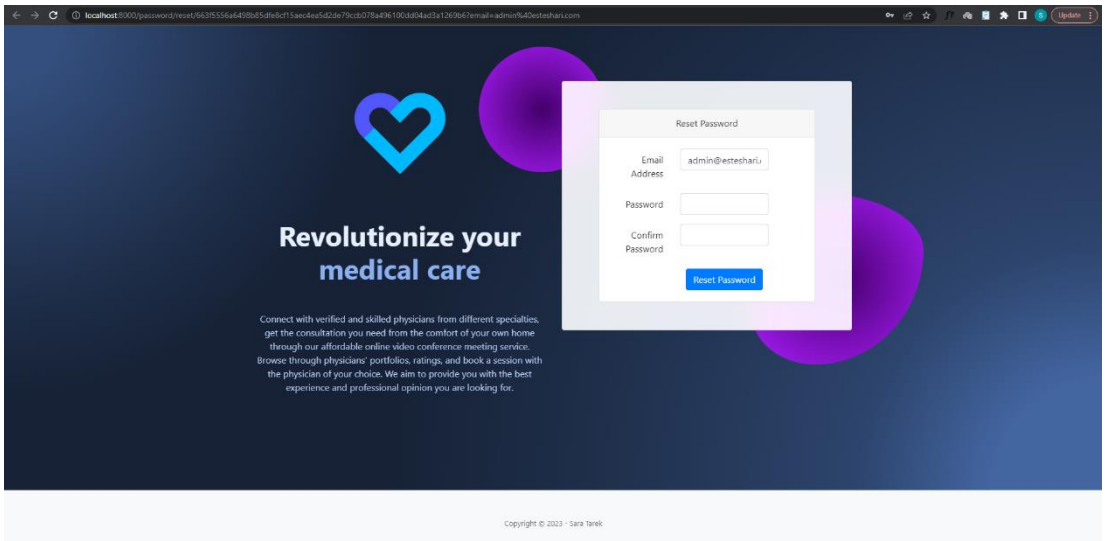

Figure 4.12 Reset Password Page with the Reset Password Token

4.3.2.5 Physician Registration Form

The Physician Registration Form in the Esteshari Telemedical System allows physicians to complete a registration request by filling in various fields and providing necessary documentation. The registration form consists of sections 1 to 8, including personal information, educational qualifications, work experience, board certifications, professional registrations, references, language qualifications, and other relevant details. These sections are visually represented in Figures 4.13 to 4.20 of the system documentation, providing a clear and organized view of the registration process.

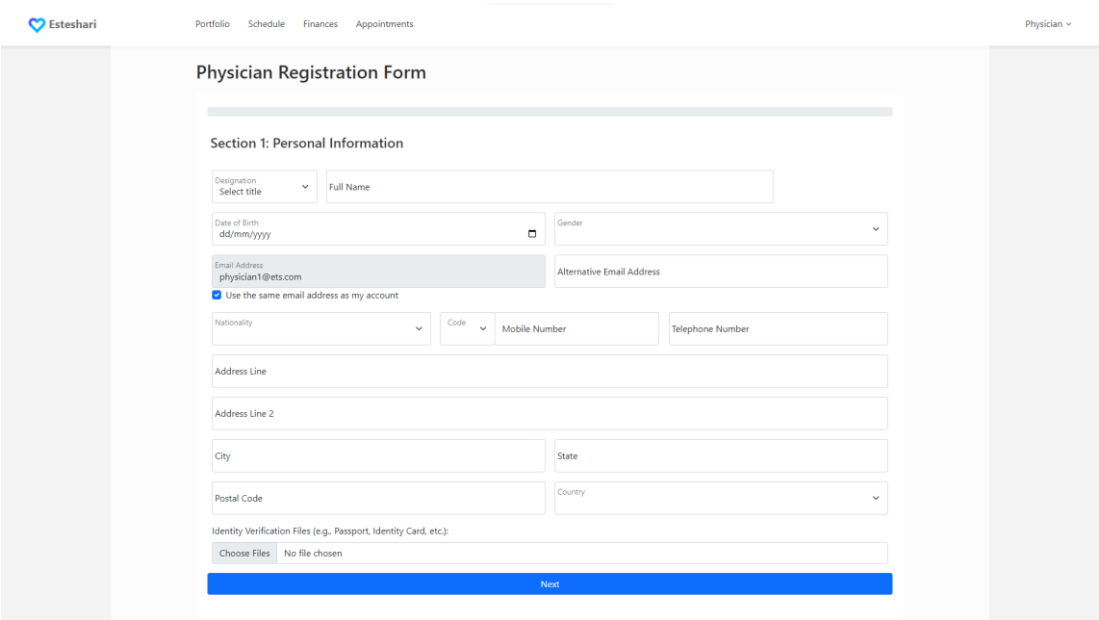

Figure 4.13 Physician Registration Form – Section 1

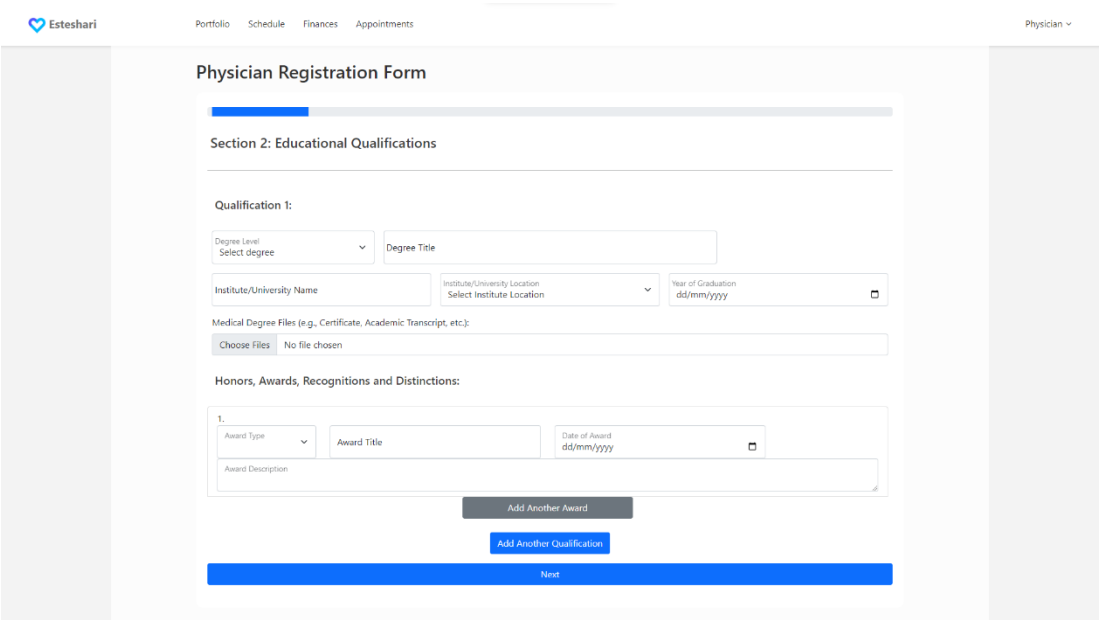

Figure 4.14 Physician Registration Form – Section 2

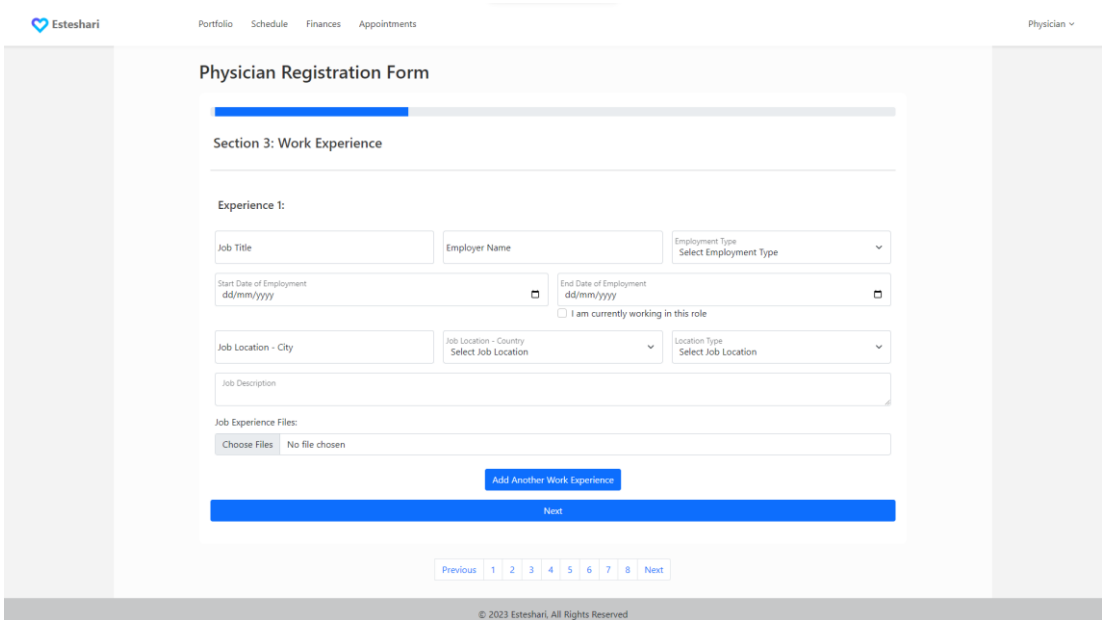

Figure 4.15 Physician Registration Form – Section 3

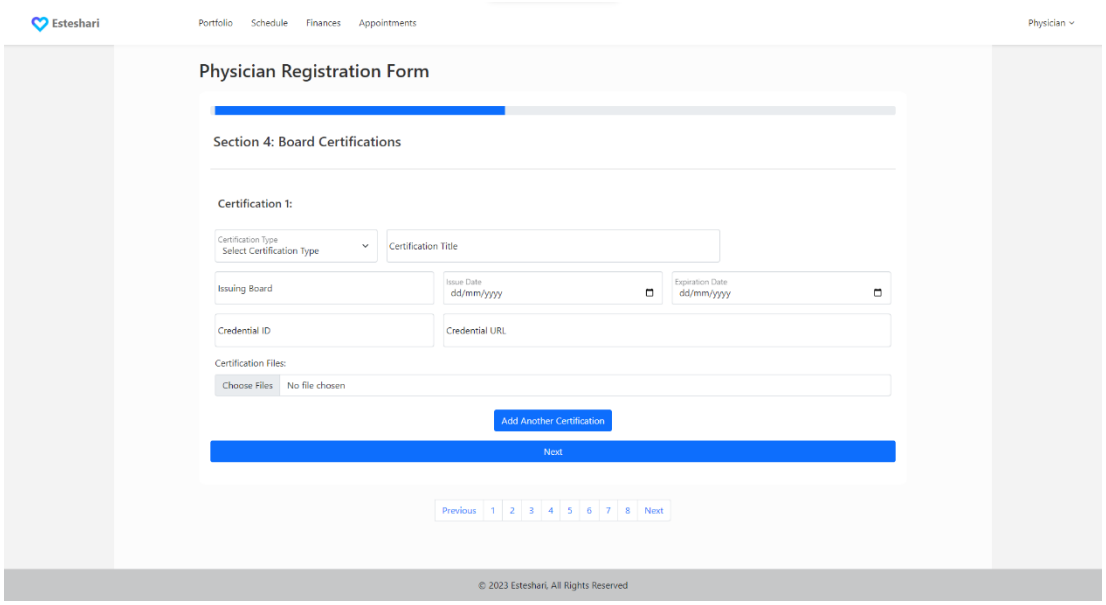

Figure 4.16 Physician Registration Form – Section 4

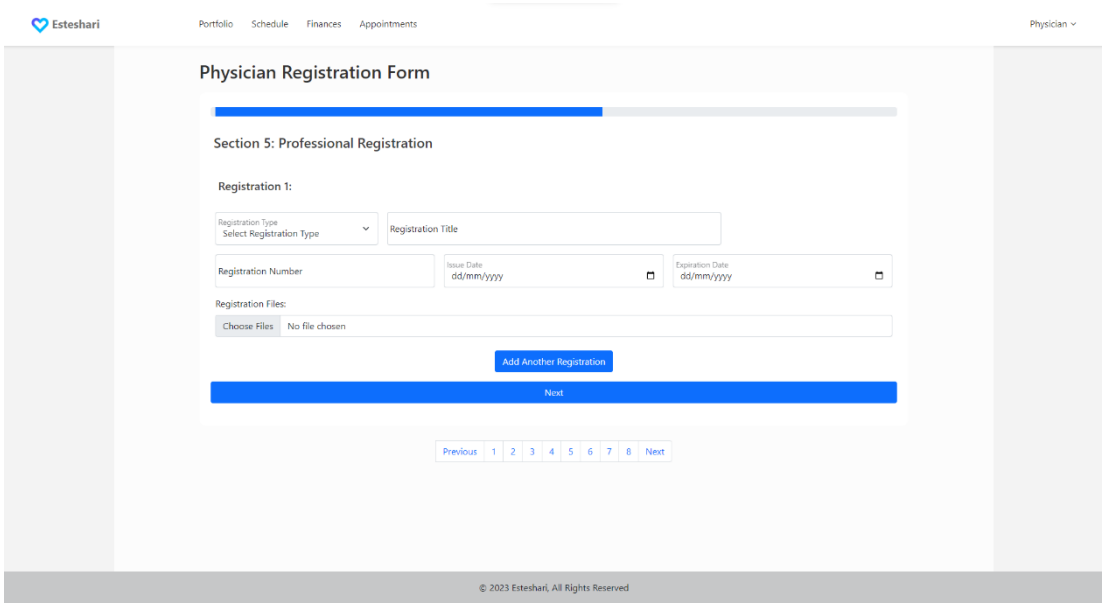

Figure 4.17 Physician Registration Form – Section 5

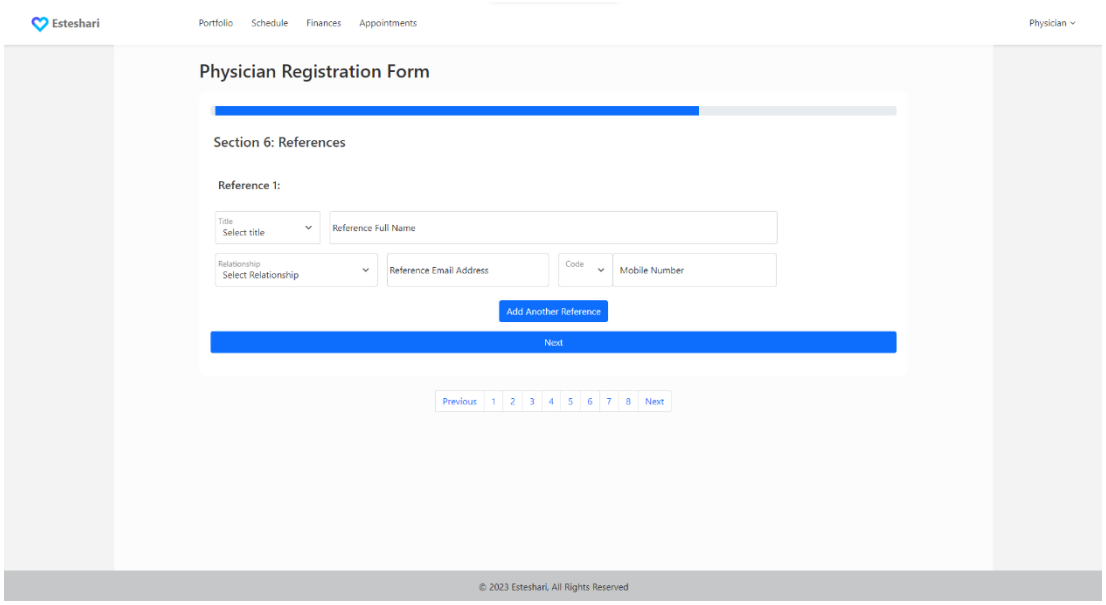

Figure 4.18 Physician Registration Form – Section 6

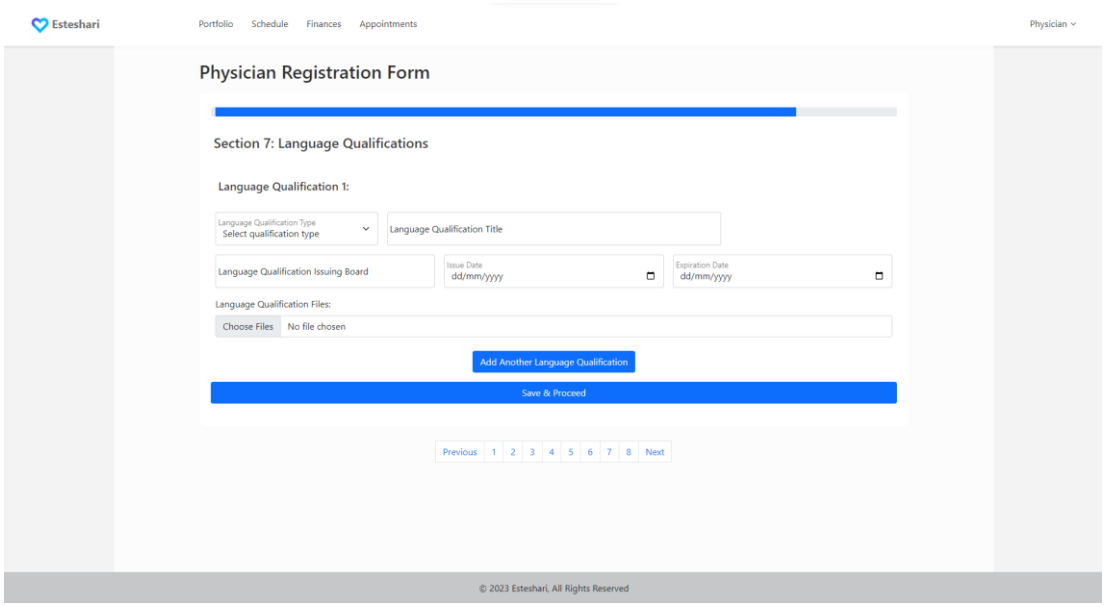

Figure 4.19 Physician Registration Form – Section 7

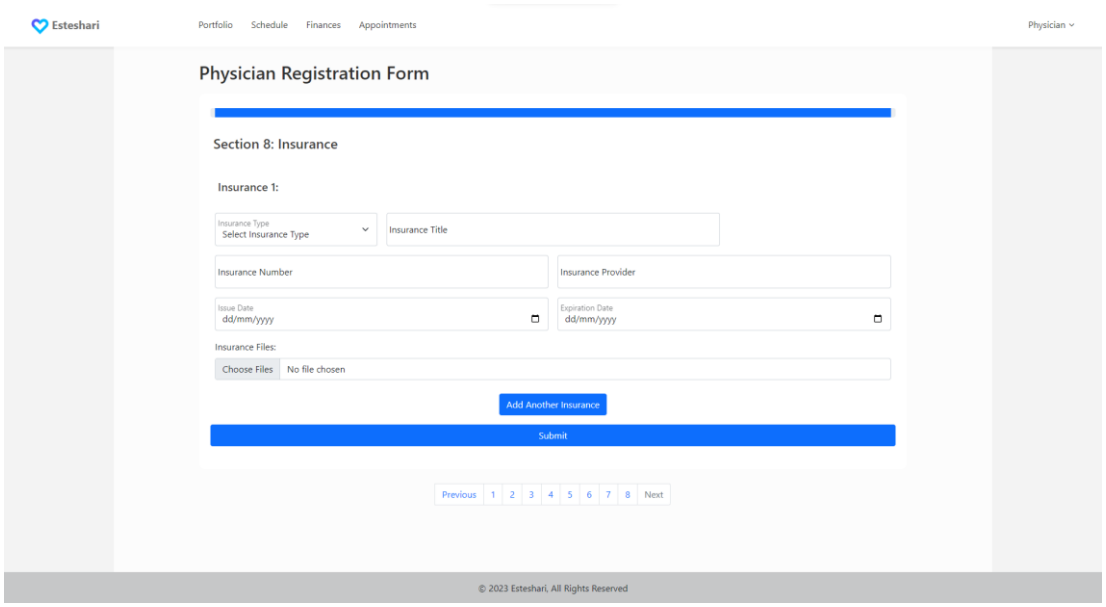

Figure 4.20 Physician Registration Form – Section 8

Upon submission of the registration form, the physician's status transitions to "pending," indicating that the registration request is under review. This pending status is displayed in Figure 4.21, which visually depicts the interface where physicians can track the progress of their registration and await the system administrator's review. This page provides transparency and updates regarding the registration status, ensuring

that physicians are informed of the ongoing process and the next steps in the registration journey within the Esteshari Telemedical System.

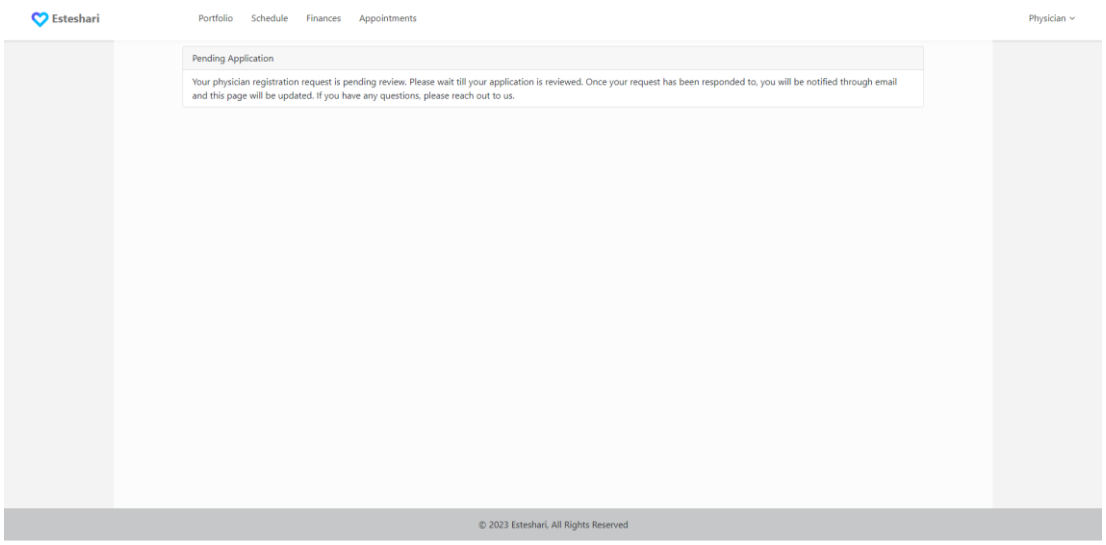

Figure 4.21 Physician Pending Page

4.3.2.6 Manage Pending Registration Requests

The Esteshari Telemedical System provides the System Administrator with the capability to manage physician registration applications effectively. The System Administrator has privileged access to view and manage the list of pending physician registration requests. Through the system interface, the System Administrator can review the submitted registration forms, which include details provided by physicians seeking access to the platform. The interface for all the pending physician registration requests is displayed in Figure 4.22.

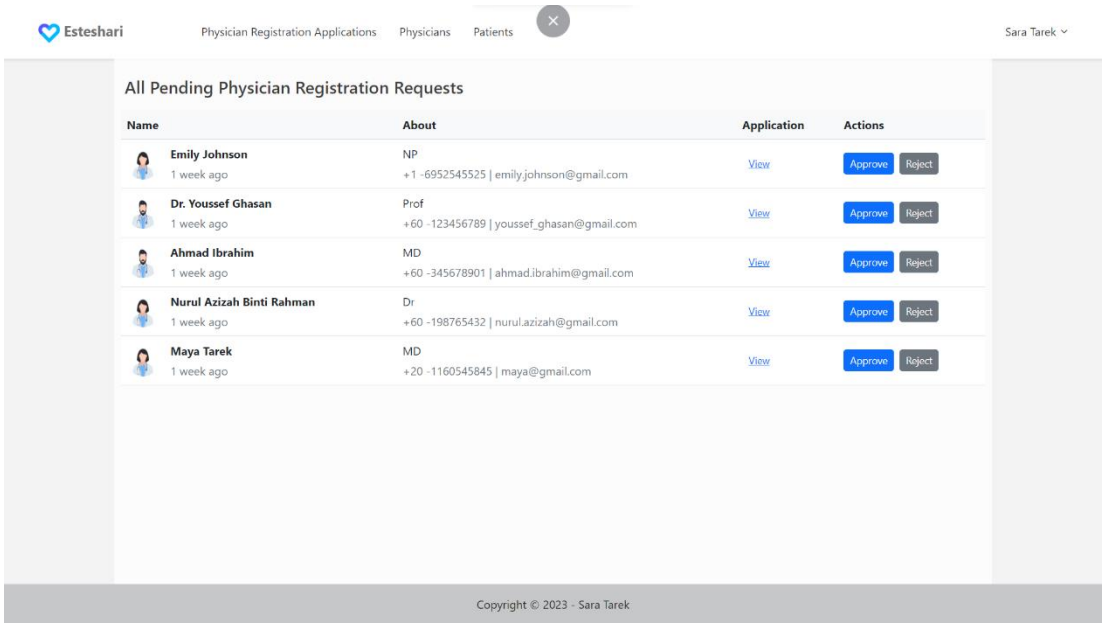

Figure 4.22 Esteshari All Pending Registration Requests

Based on the evaluation of the registration forms, the System Administrator can respond to the requests by either approving or rejecting them. Upon approval or rejection, notification emails are automatically generated and sent to the respective physicians, informing them of the outcome of their registration request. A sample registration approval email is shown in Figure 4.23, while a sample of the rejection email is shown in Figure 4.24.

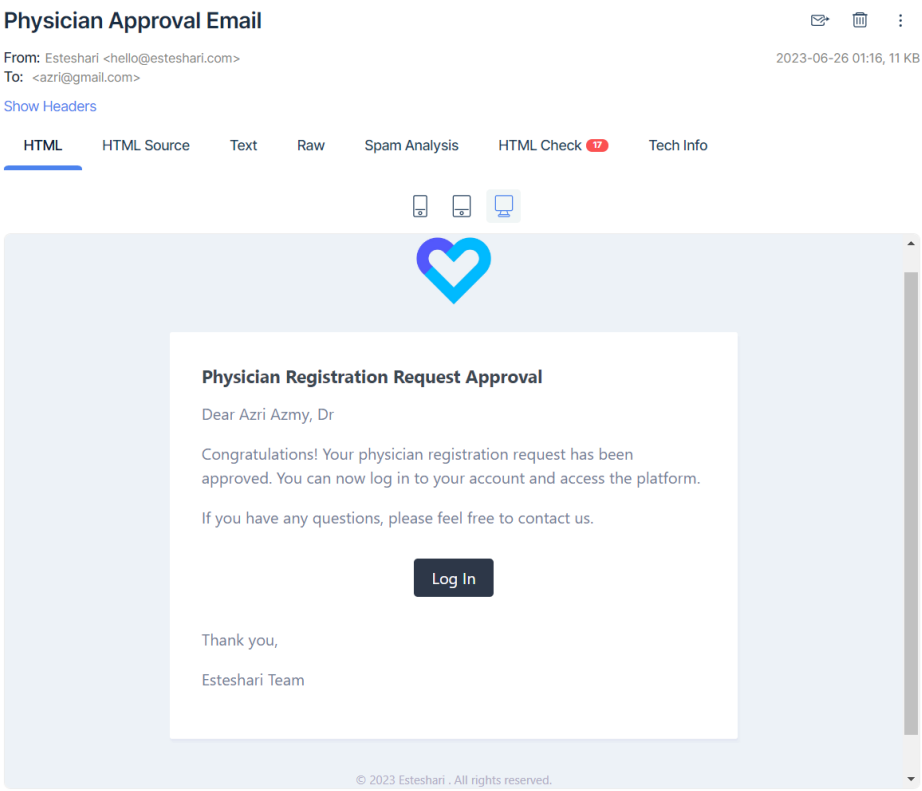

Figure 4.23 Esteshari Approval Email

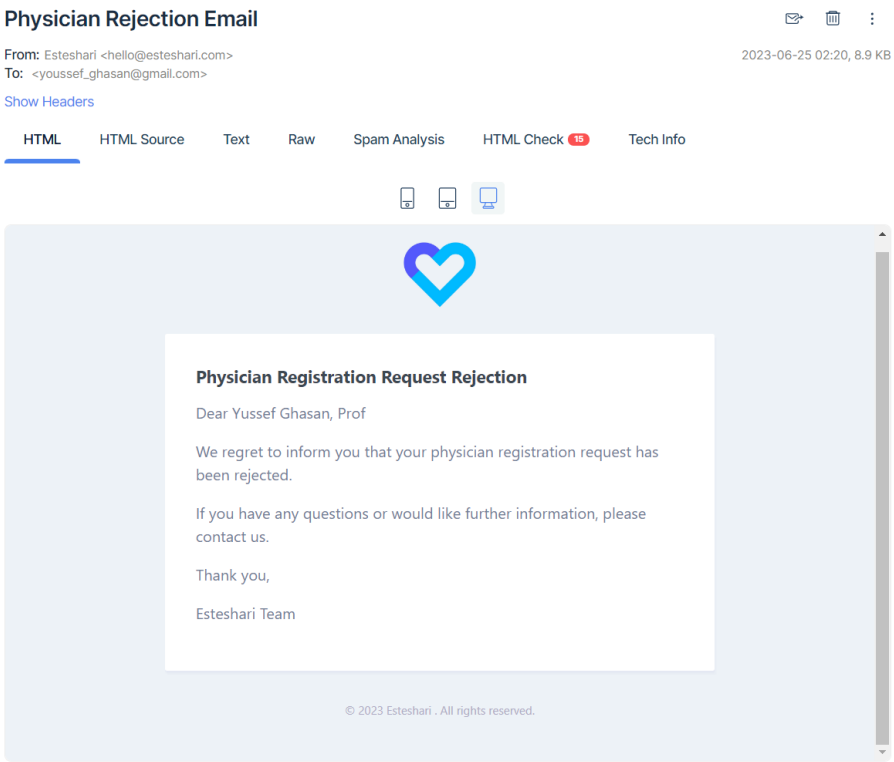

Figure 4.24 Esteshari Rejection Email

In addition to managing pending requests, the System Administrator has access to the complete history of physician registration applications. This view, as shown in Figure 4.25, enables the System Administrator to track the progress of each application, review application details, and ascertain the status of each request (whether pending, approved, or rejected). This feature ensures transparency and efficient management of physician registrations, maintaining the integrity and credibility of the Esteshari Telemedical System. A sample of a submitted physician registration application can be shown in Figures 4.25 to 4.32.

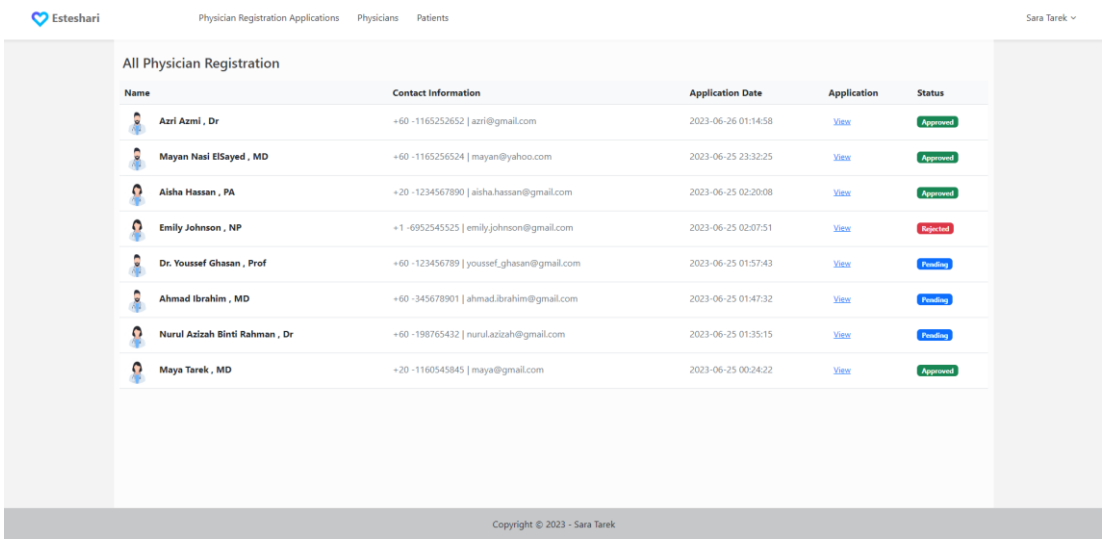

Figure 4.25 Physician Registrations

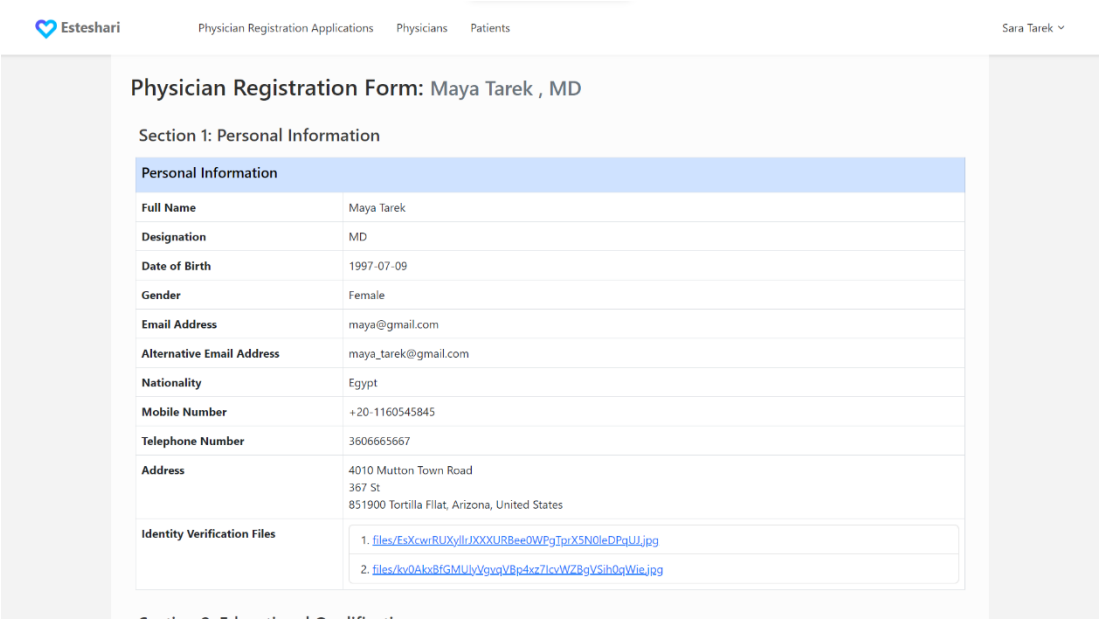

Figure 4.26 View Pending Registration Application (Section 1)

Section 2: Educational Qualifications

Educational Qualification #1	
Degree Level	MD
Degree Title	Bachelor's of Medicine
Institute	University of Texas
Institute Location	United States
Year of Graduation	2023-06-25
Degree Files	1. files/hvz2BoF3ACLAMOtlkZOJAHpnU1Cp9TymS5CISPNu.jpg
Honors & Awards for Educational Qualification #1	
Award Type	N/A
Award Title	N/A
Date of Award	N/A
Award Description	N/A

Figure 4.27 View Pending Registration Application (Section)

Section 3: Work Experience

Work Experience #1	
Job Title	Medical Doctor
Employer Name	King John Specialist Hospital
Employment Type	Full-time
Start Date of Employment	2023-06-22
End Date of Employment	N/A
Job Location	Texas, United States
Location Type	On-site
Job Description	Medical doctor at King John Specialist Hospital
Job Experience Files	

Figure 4.28 View Pending Registration Application (Section 3)

Section 4: Board Certifications

Board Certification #1	
Certification Type	Advanced Practice Certification
Certification Title	Medical Advanced Practice Certification in Internal Medicine
Certification Issuing Board	Internal Medicine Board
Certification Issue Date	2023-06-08
Certification Expiry Date	2025-07-30
Certification Credential ID	LN-2182-92843
Certification Credential URL	Certification Credential URL
Certification Files	1. files/Wl42tlLJE9j6ZPNcFz2bHAtpzzQHJVoETgX7KmgF.jpg 2. files/gyKHTfS5x9rdX5Ztm94J2OIl05soojk8Xo8V4RvK.pdf 3. files/cxApZPXx1cNzrxU1rjlXUNQrHxkqIP17MxiP62pH.webp

Figure 4.29 View Pending Registration Application (Section 4)

Section 5: Professional Registrations

Board Certification #1	
Registration Type	State Registration
Registration Title	Medical State Registration
Registration Number	2029-2239-2928
Registration Issue Date	2023-06-08
Registration Expiry Date	2026-06-17
Registration Files	1. files/mkkWxo5wz3I6XqSIicjwSH3pPMh090z5sTjqSKvo.jpg

Section 6: Physician References

Reference #1	
Reference Title	Gov
Reference Full Name	James D Velazquez
Reference Relationship	Mentor
Reference Email Address	james@gmail.com
Reference Mobile Number	+880-1152452355

Figure 4.30 View Pending Registration Application (Section 5 and Section 6)

Section 7: Language Qualifications

Language Qualification #1	
Language Qualification Type	DELF (Diplôme d'Études en Langue Française)
Language Qualification Title	DELF DALF France Certification
Language Qualification Issuing Board	Delf Board de France
Language Qualification Issuing Board	2023-06-01
Language Qualification Expiry Date	2025-06-11
Language Qualification Files	1. files/YqYnnn5cYQ45SjzywDwATk8rkyM4jylokruIB5As.jpg

Figure 4.31 View Pending Registration Application (Section 7)

Section 8: Insurances

Insurance #1	
Insurance Type	Physician Malpractice Insurance
Insurance Title	Malpractice Certification of Insurance
Insurance Number	1115-5485-8885
Insurance Issue Date	2023-05-05
Insurance Expiry Date	2029-11-02
Insurance Provider	Acme Insurance Company
Insurance Files	N/A

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Figure 4.32 View Pending Registration Application (Section 8)

4.3.2.7 View Physicians List

The Esteshari Telemedical System provides the System Administrator with the capability to access and view the list of physicians registered within the system. Through the dedicated interface as shown in Figure 4.33, the System Administrator

can obtain an overview of all physicians, including their respective status within the system. This enables efficient management and monitoring of the physician database.

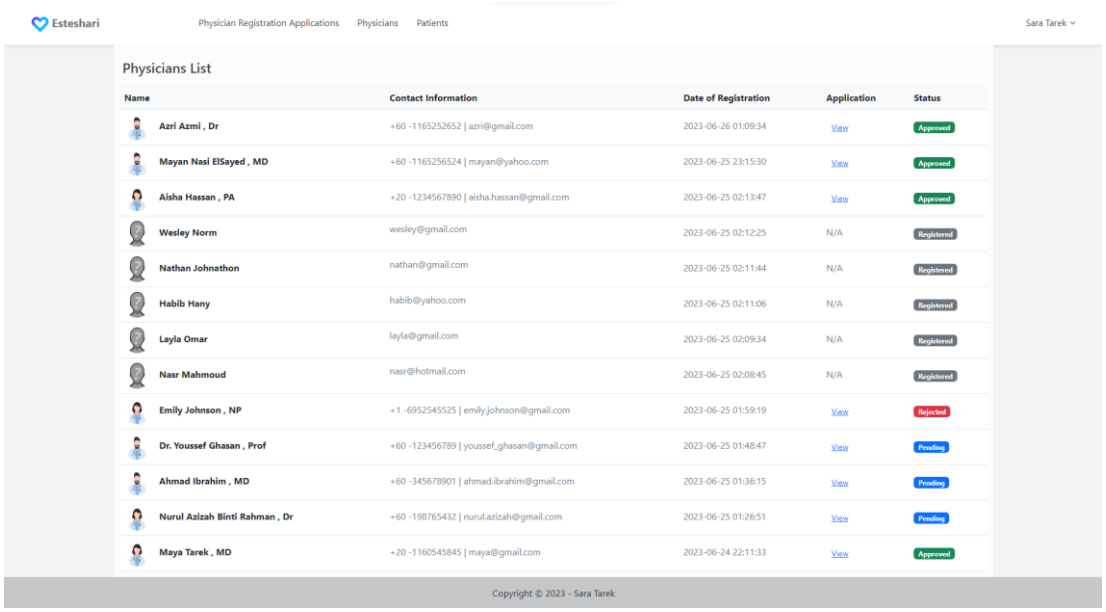


Figure 4.33 View Physicians List

In addition to viewing the list of physicians, the System Administrator has the option to delve deeper by accessing the submitted physician registration applications, if applicable. This feature allows the System Administrator to retrieve and review the details provided by physicians during their registration process, gaining insights into their qualifications, experience, and other pertinent information.

4.3.2.8 View Patients List

The Esteshari Telemedical System provides the System Administrator with the ability to access and view the list of registered patients within the system. Through the dedicated interface, the System Administrator can retrieve the list of all patients registered on the platform as shown in Figure 4.34.

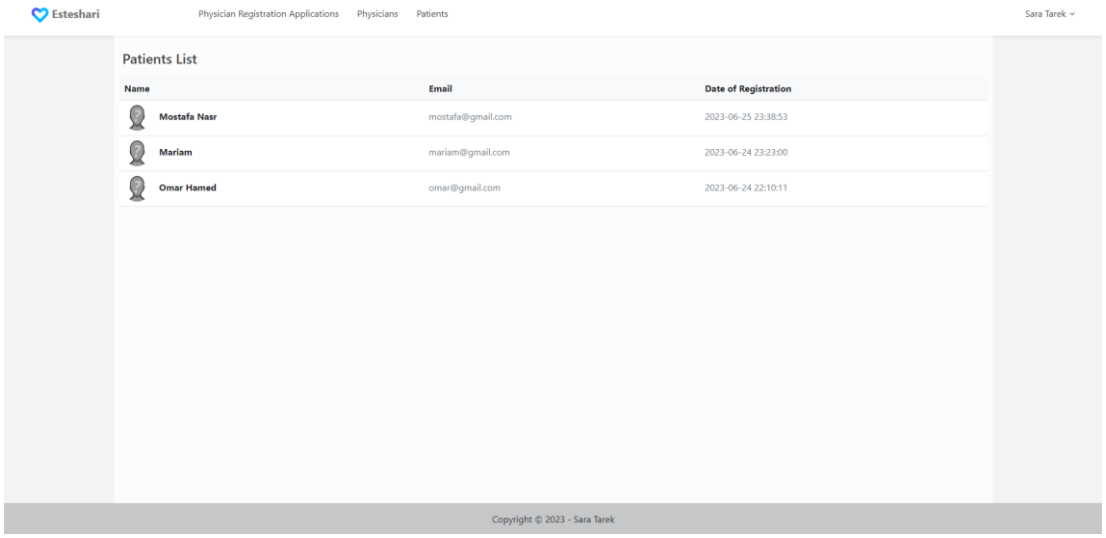


Figure 4.34 View Patients List

4.3.2.9 Manage Portfolio

The Esteshari Telemedical System provides physicians with the capability to manage their professional portfolio, enabling them to showcase their expertise, qualifications, and additional details. Through the "Manage Portfolio" feature, physicians have the flexibility to add, update, and maintain their portfolio information, ensuring that it accurately represents their professional background and areas of specialization.

Physicians can leverage this functionality to highlight their educational qualifications, professional certifications, work experience, research publications, and any other relevant information that establishes their credibility and expertise. By curating a detailed and up-to-date portfolio, physicians can effectively present their skills and accomplishments to patients, fostering trust and confidence in their abilities.

The portfolio serves as a valuable resource for patients seeking medical consultations, as it offers insights into the physician's professional background and areas of focus. Patients can access the physician's portfolio to gain a better understanding of their qualifications, expertise, and approach to healthcare, ultimately aiding them in making informed decisions when selecting a healthcare provider.

The "Manage Portfolio" feature not only enhances the visibility and credibility of physicians within the Esteshari Telemedical System but also facilitates stronger patient-physician connections. By enabling physicians to showcase their professional achievements and qualifications, this functionality contributes to a more transparent and informed healthcare ecosystem, benefiting both physicians and patients alike. Physician view portfolio is displayed in Figures 4.35 to 4.39, and physician manage portfolio is displayed in Figures 4.40 to 4.45.

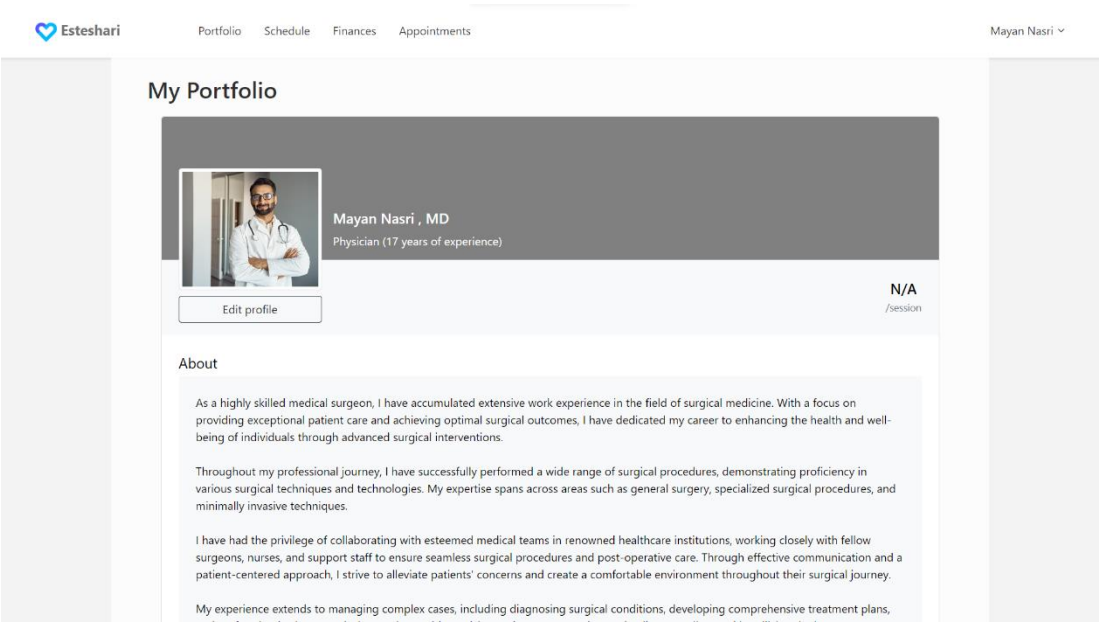


Figure 4.35 Physician View Portfolio (A)

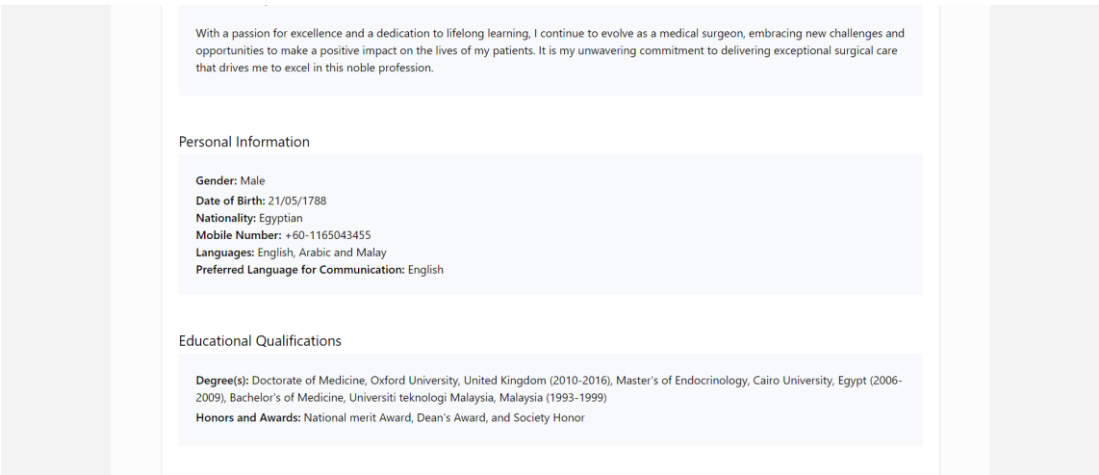


Figure 4.36 Physician View Portfolio (B)

Work Experience

Contract Physician at Future Hospital, United Kingdom (2001-Present)
I have had the privilege of collaborating with esteemed medical teams in renowned healthcare institutions. Through effective communication and a patient-centered approach, I strive to alleviate patients' concerns and create a comfortable environment throughout their surgical journey.

Part-time Medical Resident at Alh-Huda Hospital, Egypt (1998-2001)
I have had the privilege of collaborating with esteemed medical teams in renowned healthcare institutions, working closely with fellow surgeons, nurses, and support staff to ensure seamless surgical procedures and post-operative care. Through effective communication and a patient-centered approach, I strive to alleviate patients' concerns and create a comfortable environment throughout their surgical journey.

Figure 4.37 Physician View Portfolio (C)

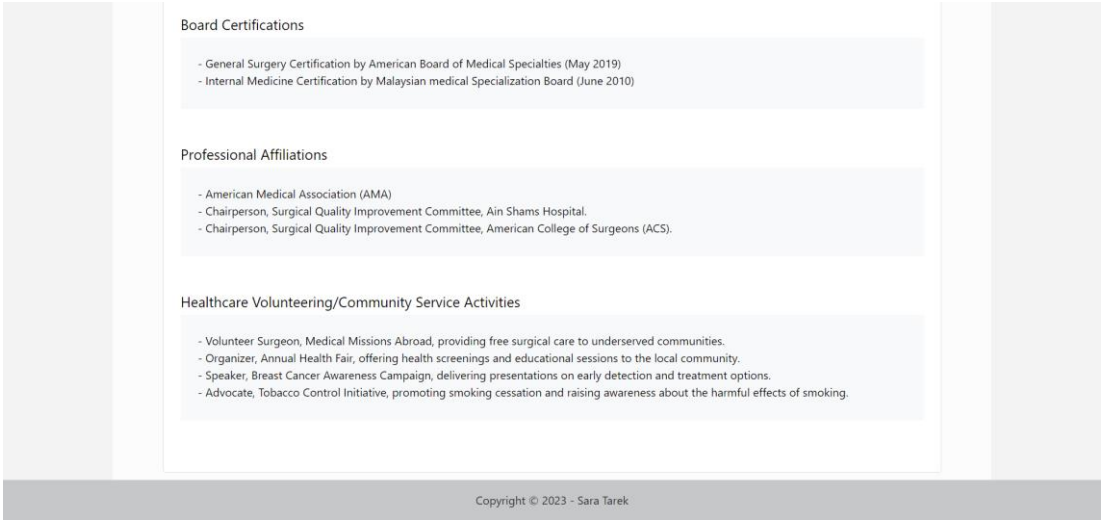
Research and Publications

Research Projects Conducted:
- Investigating the Efficacy of Novel Surgical Techniques in Treating Cardiovascular Diseases (UTM).
- Assessing the Impact of Early Intervention Programs on Neurodevelopmental Outcomes in Premature Infants.

Publications:
- Smith, J., Johnson, A., Anderson, B., et al. (2022). "A Comprehensive Review of Surgical Approaches in Treating Coronary Artery Disease." Journal of Cardiovascular Surgery, 45(3), 120-135
- Brown, S., Roberts, L., Thompson, M., et al. (2021). "Long-term Neurodevelopmental Outcomes in Children Born Preterm: A Prospective Cohort Study." Pediatrics, 138(5), e20210123.

Contributions:
- Presenter and Speaker, Annual Cardiology Conference, 2022: "Advancements in Minimally Invasive Cardiac Surgery: A Comparative Study"
- Panelist, Robotic Surgery Symposium, 2020: "Robotic-Assisted Orthopedic Surgeries: Current Trends and Future Directions"
- Poster Presentation, American Society of Clinical Oncology Annual Meeting, 2019: "Genetic Markers as Predictors of Treatment Response in Breast Cancer"
- Keynote Speaker, Pain Management Conference, 2018: "Pharmacological Interventions in Chronic Pain Management: An Evidence-based Approach"

Figure 4.38 Physician View Portfolio (D)



Board Certifications

- General Surgery Certification by American Board of Medical Specialties (May 2019)
- Internal Medicine Certification by Malaysian medical Specialization Board (June 2010)

Professional Affiliations

- American Medical Association (AMA)
- Chairperson, Surgical Quality Improvement Committee, Ain Shams Hospital.
- Chairperson, Surgical Quality Improvement Committee, American College of Surgeons (ACS).

Healthcare Volunteering/Community Service Activities

- Volunteer Surgeon, Medical Missions Abroad, providing free surgical care to underserved communities.
- Organizer, Annual Health Fair, offering health screenings and educational sessions to the local community.
- Speaker, Breast Cancer Awareness Campaign, delivering presentations on early detection and treatment options.
- Advocate, Tobacco Control Initiative, promoting smoking cessation and raising awareness about the harmful effects of smoking.

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Figure 4.39 Physician View Portfolio (E)

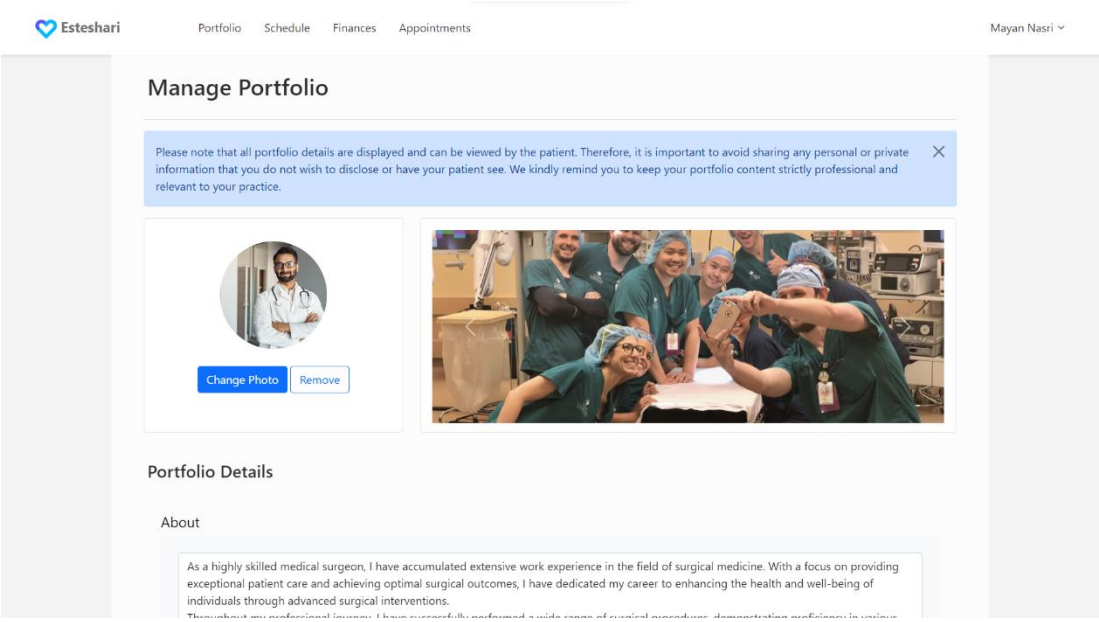

Figure 4.40 Physician Manage Portfolio (A)

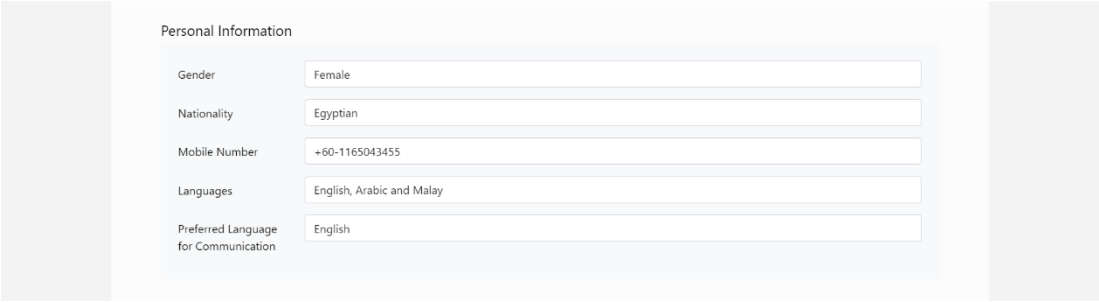

Figure 4.41 Physician Manage Portfolio (B)

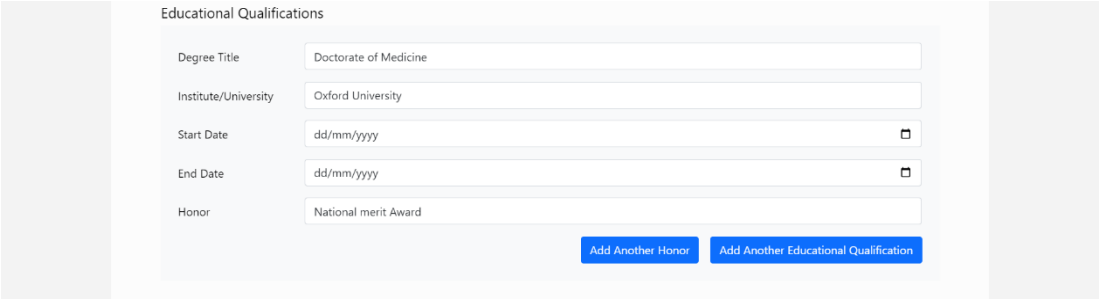

Figure 4.42 Physician Manage Portfolio (C)

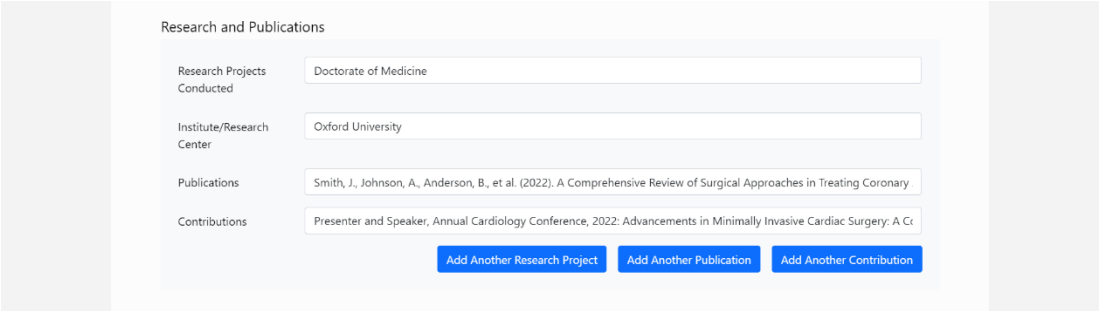

Figure 4.43 Physician Manage Portfolio (D)

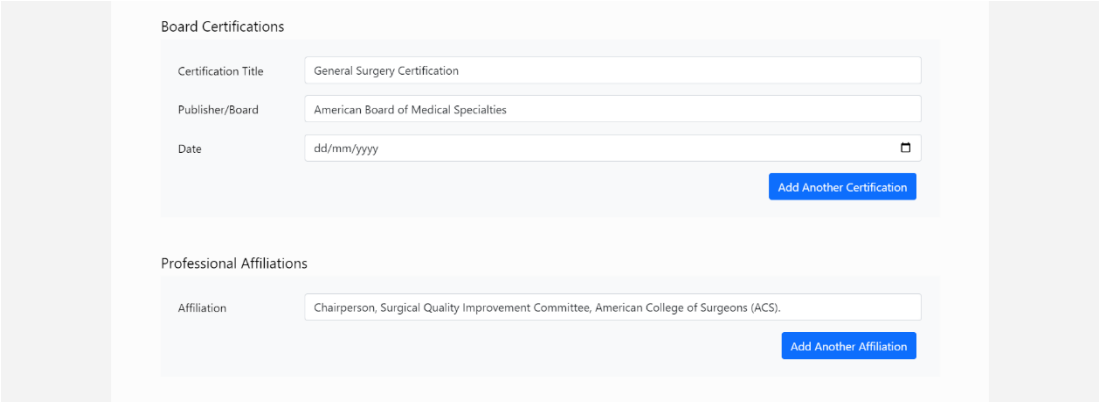

Figure 4.44 Physician Manage Portfolio (E)

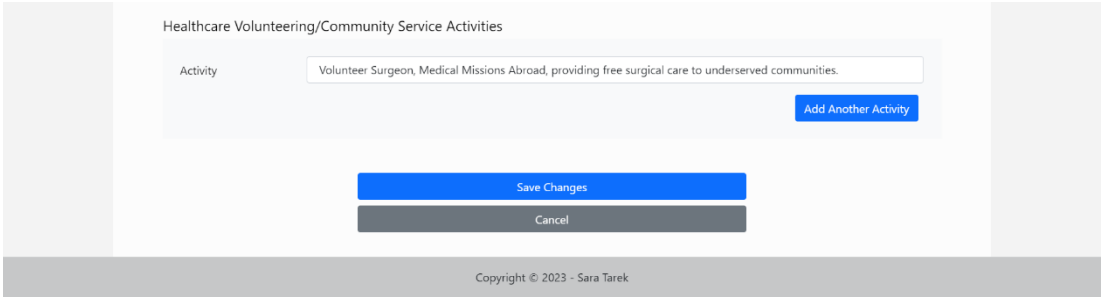

Figure 4.45 Physician Manage Portfolio (F)

4.3.2.10 Manage Schedule

Within the Esteshari Telemedical System, physicians have the ability to efficiently manage their schedules using the "Physician Manage Schedule" feature. This functionality empowers physicians to organize and optimize their availability for patient consultations, ensuring effective time management and seamless appointment scheduling.

By accessing the schedule menu within their view, physicians can easily navigate to their schedule interface. The schedule is presented in the default List View as shown in Figure 4.46, providing an overview of all existing slots. Physicians also have the flexibility to customize their schedule display by selecting different viewing options such as day, week, month, or year as displayed in Figures 4.47, 4.48, 4.49 and 4.50 consecutively. This dynamic display allows physicians to adapt their schedule management based on their preferred time frame and planning needs.

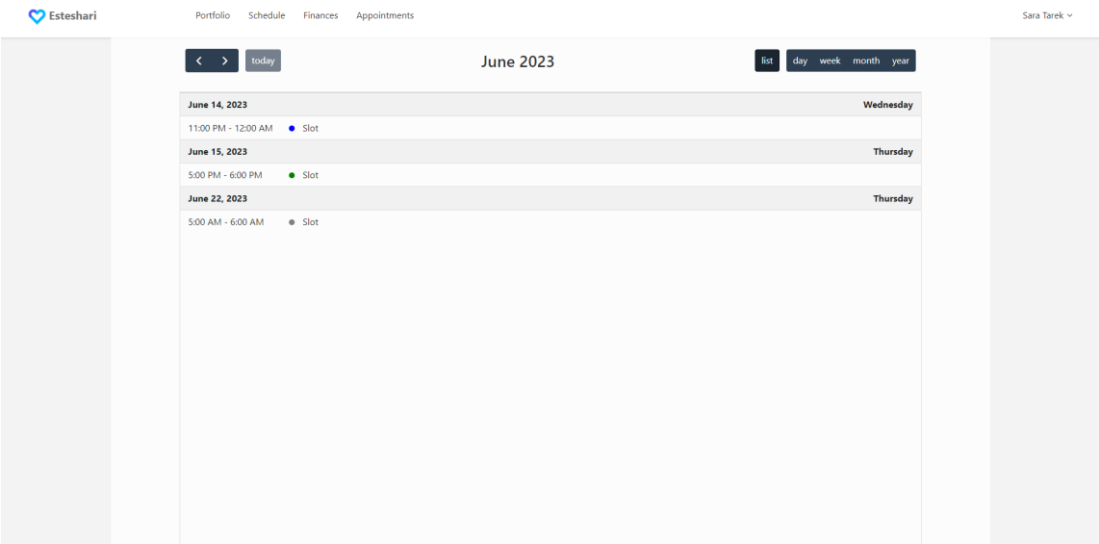

Figure 4.46 View Schedule Page - List View

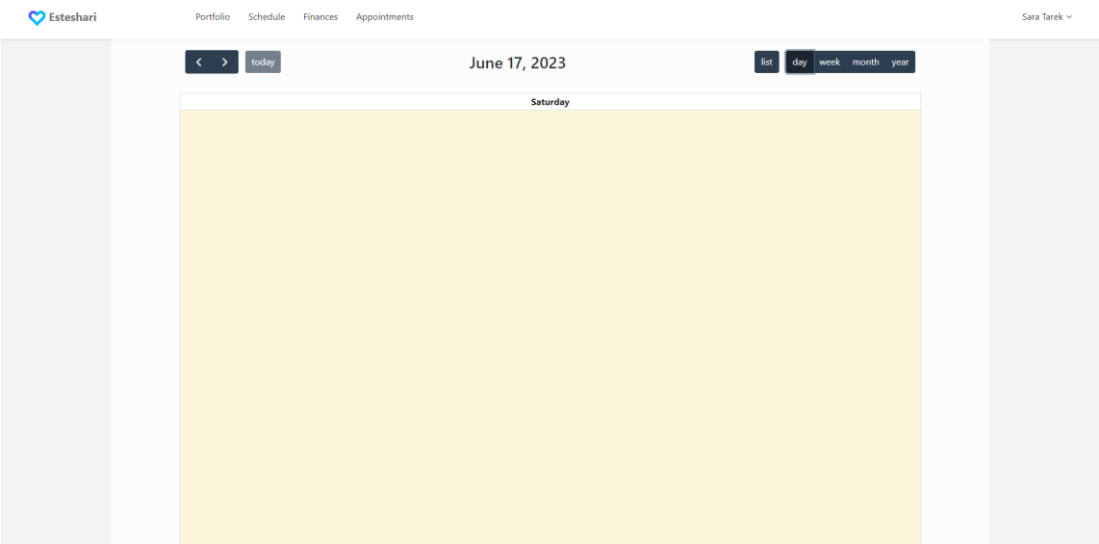

Figure 4.47 View Schedule Page - Day View

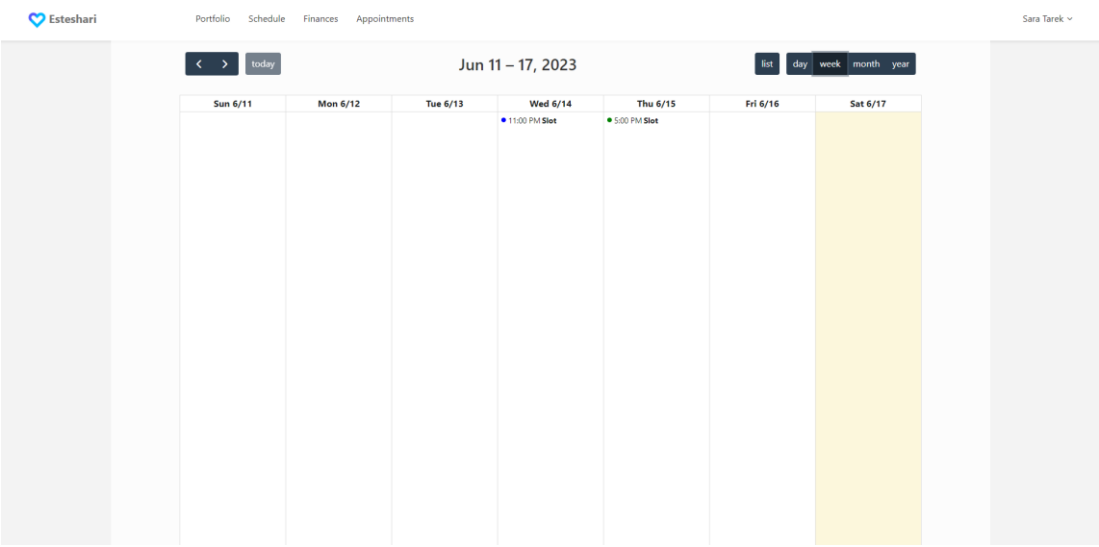

Figure 4.48 View Schedule Page - Week View

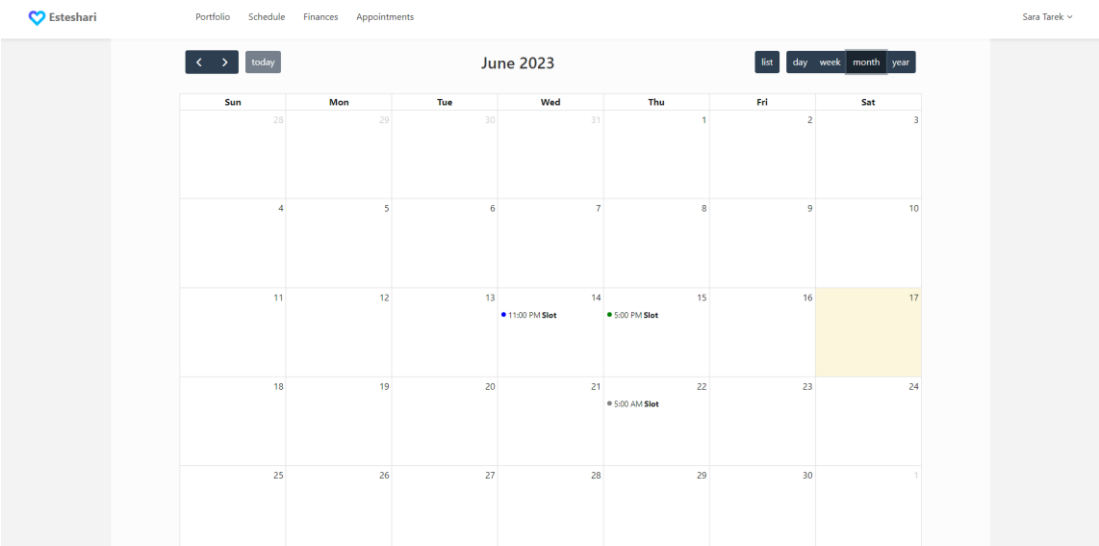

Figure 4.49 View Schedule Page - Month View

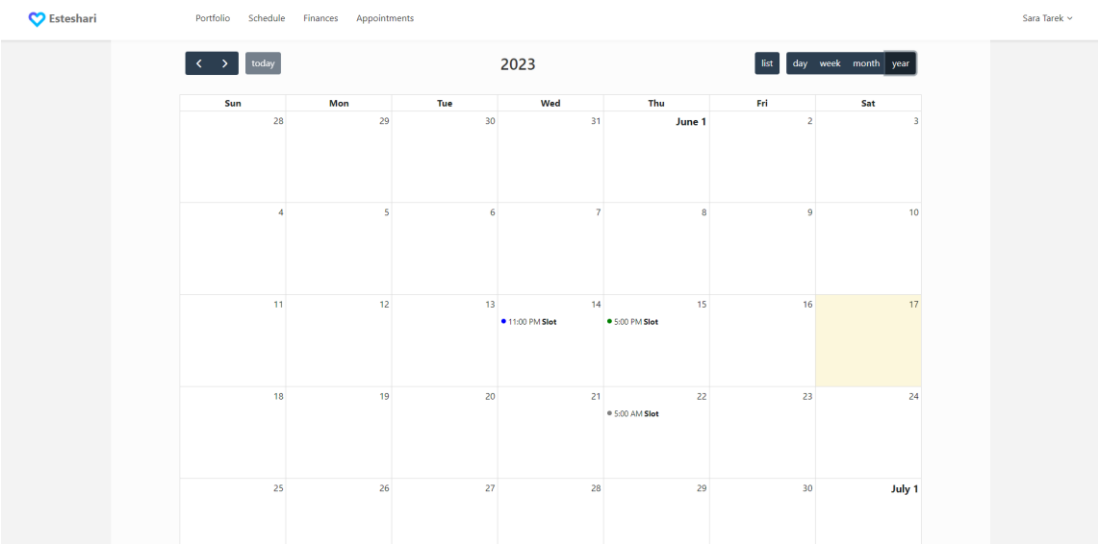

Figure 4.50 View Schedule Page - Year View

The "Physician Manage Schedule" feature offers a range of essential actions to physicians, enabling them to efficiently handle their schedule. As shown in Figure 4.51, physicians can add new slots to their schedule, facilitating the creation of available time slots for patient appointments. They can also edit existing slots as shown in Figure 4.52 to modify the duration, timing, or other relevant details. Furthermore, the flexibility to delete slots, as shown in Figure 4.53, ensures that physicians can make necessary adjustments to their schedule as needed.

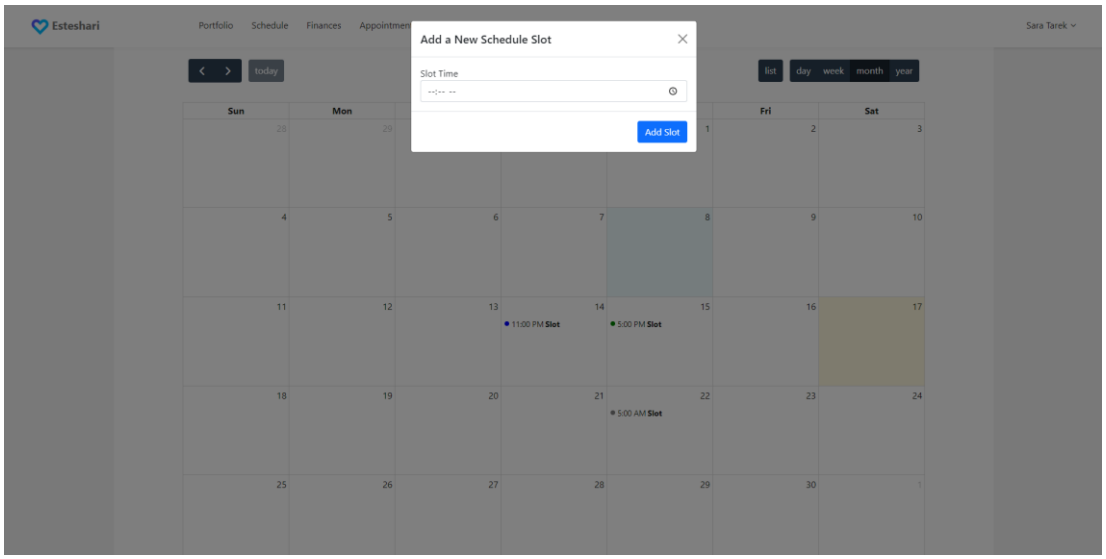

Figure 4.51 View Schedule Page – Add New Slot

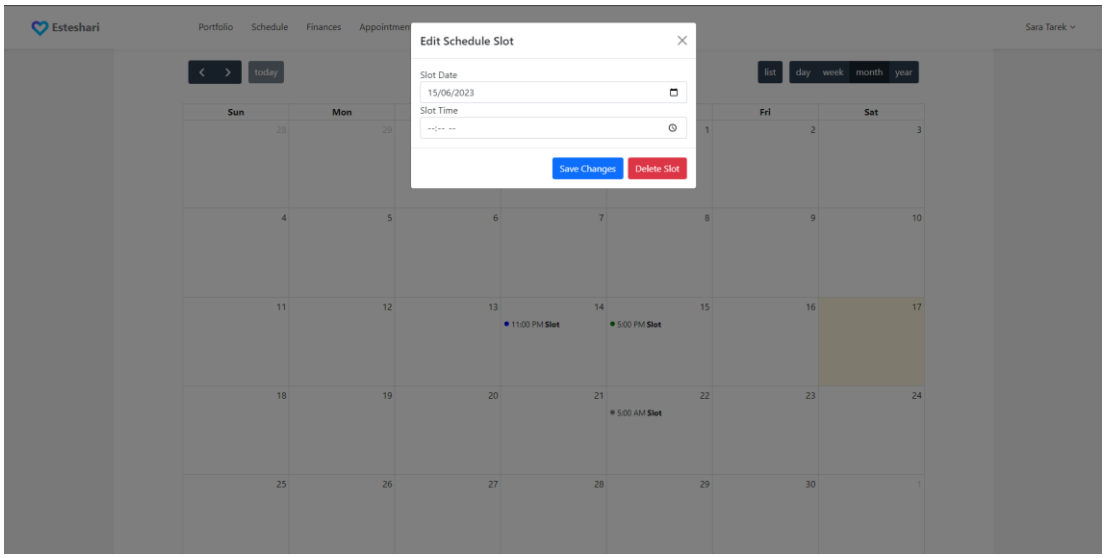

Figure 4.52 View Schedule Page – Edit Existing Slot

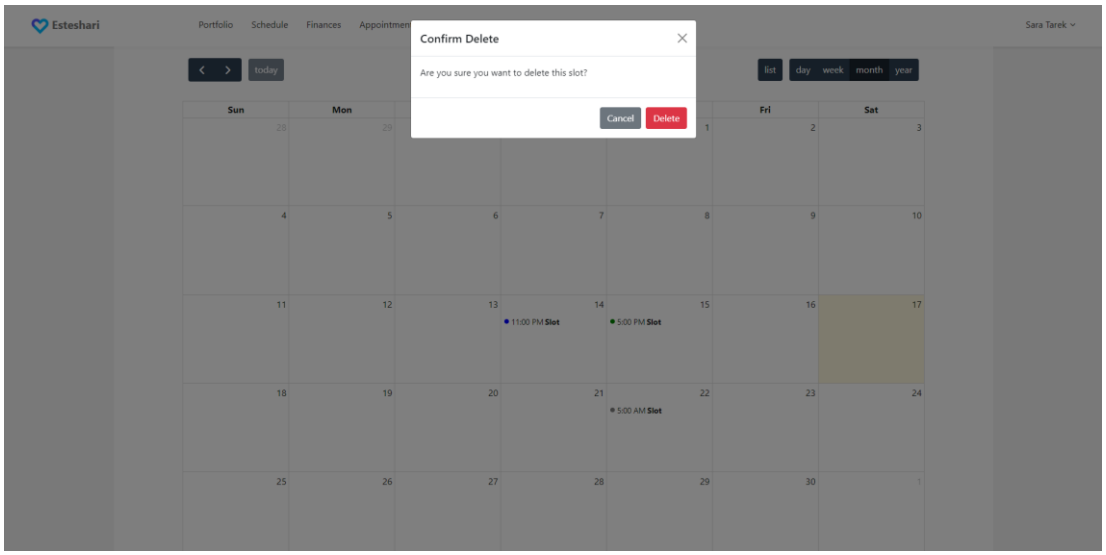

Figure 4.53 View Schedule Page – Delete Existing Slot

4.3.2.11 Manage Finances

Within the Esteshari Telemedical System, physicians have the capability to efficiently manage their finances through the "Manage Finances" feature. This functionality empowers physicians to handle various financial aspects within the system, ensuring transparency and control over their revenue and financial information.

To access their finances, physicians must be logged into their account with an approved status granted by the System Administrator. Once logged in, physicians can navigate to the menu and select the "Finances" option. This will provide them with access to the range of financial management functionalities available to them.

The "Manage Finances" feature encompasses three main functionalities: Session Pricing, Financial Revenue, and Manage My Financial. With the Session Pricing functionality as shown in Figure 4.54, physicians can set and customize their session pricing based on their preferences and professional considerations. This allows physicians to define their consultation fees accurately, reflecting their expertise and the value they provide to patients.

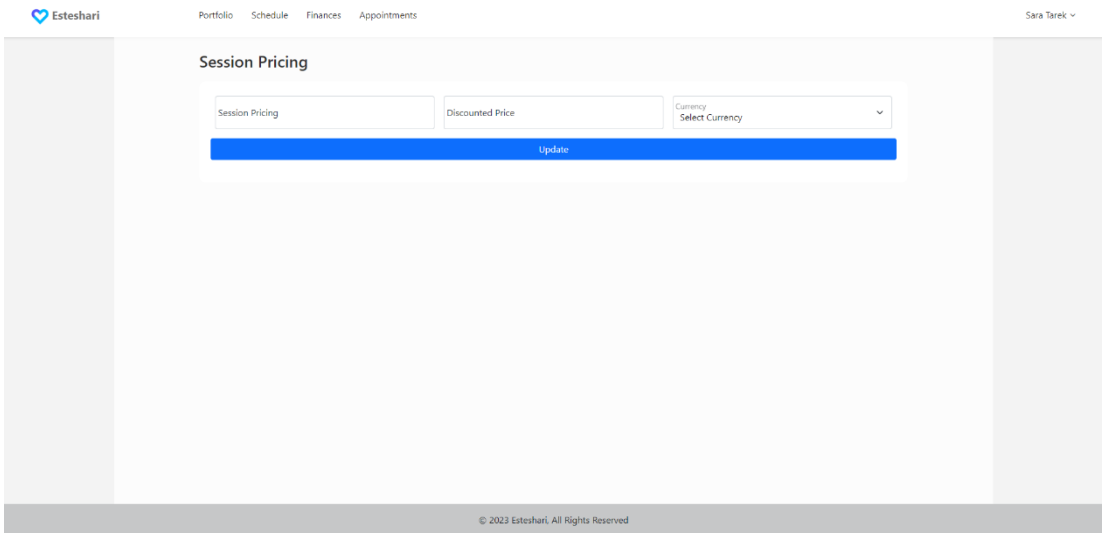

Figure 4.54 Session Pricing Page

The Financial Revenue functionality as shown in Figure 4.55 enables physicians to monitor and track their revenue details. Physicians can view their financial records, including earnings from consultations and other relevant financial transactions. This provides physicians with an overview of their financial performance and helps them assess their practice's financial health.

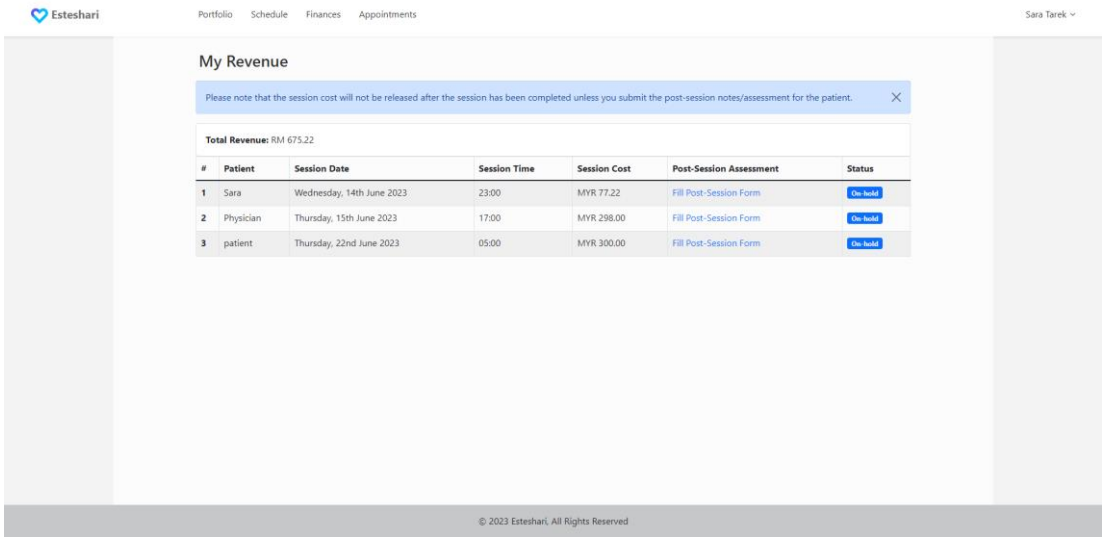

Figure 4.55 Financial Revenue Page

In addition to session pricing and financial revenue, physicians can also manage their financial information through the "Manage My Financial Information" functionality as shown in Figure 4.56. This includes adding payment methods as shown in Figure 4.57, such as credit cards, specifying primary cards for transactions, and removing outdated or unused payment methods. By managing their financial information within the system, physicians can ensure smooth and secure financial transactions and maintain up-to-date payment details.

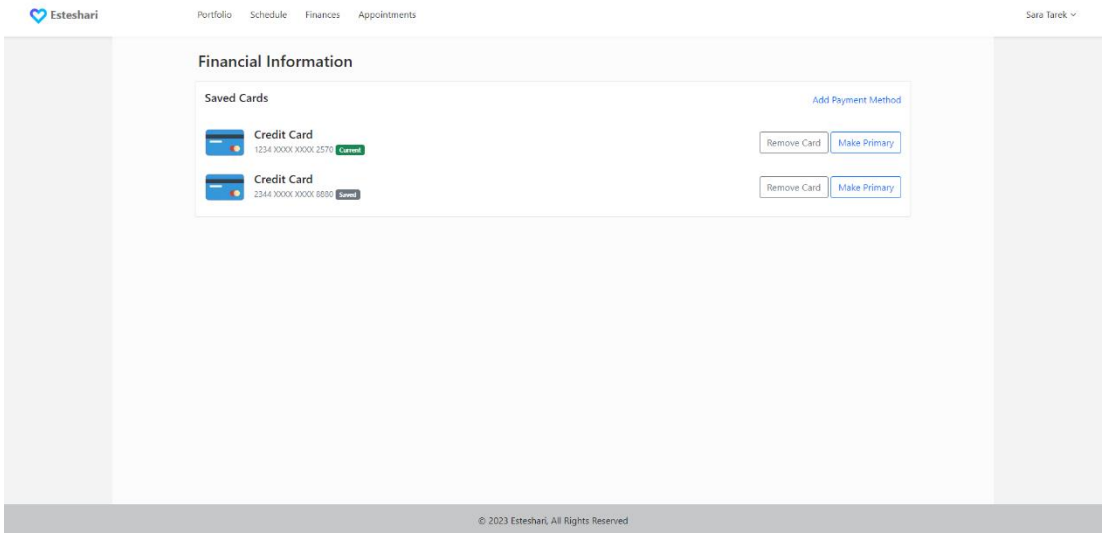

Figure 4.56 Financial Information Page

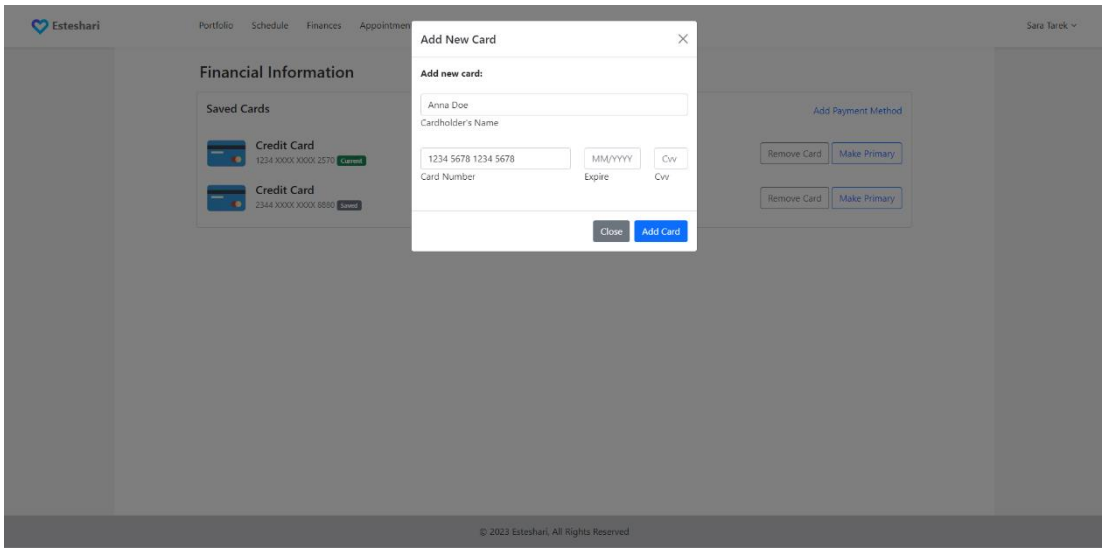

Figure 4.57 Financial Information Page - Add Payment Method

4.3.2.12 Manage Medical History

Within the Esteshari Telemedical System (ETS), patients have the ability to effectively manage their medical history through the "Manage Medical History" feature shown in Figures 4.58 to 4.61. This functionality empowers patients to input and update their personal and health-related information within the system, ensuring a detailed and accurate medical record. To access and manage their medical history, patients need to log into their ETS account. Once logged in, they can navigate to the appropriate section within the system to fill out and update their medical information. As shown in Figures 4.52 to 4.68, the "Manage Medical History" feature provides patients with a user-friendly interface and a series of forms where they can input essential details about their health.

Patients are prompted to provide their personal information. They can also input their past medical history, including information about previous illnesses, surgeries, medications, and allergies. This detailed medical history enables healthcare providers to have a complete understanding of the patient's health background and supports accurate diagnoses and treatment plans.

In addition to entering their medical history, patients have the flexibility to update their information as needed. For instance, if there are changes to their

medication or if they develop new medical conditions, patients can easily access the "Manage Medical History" section and make the necessary updates. This ensures that healthcare providers have access to the most up-to-date information, promoting effective and personalized healthcare delivery.

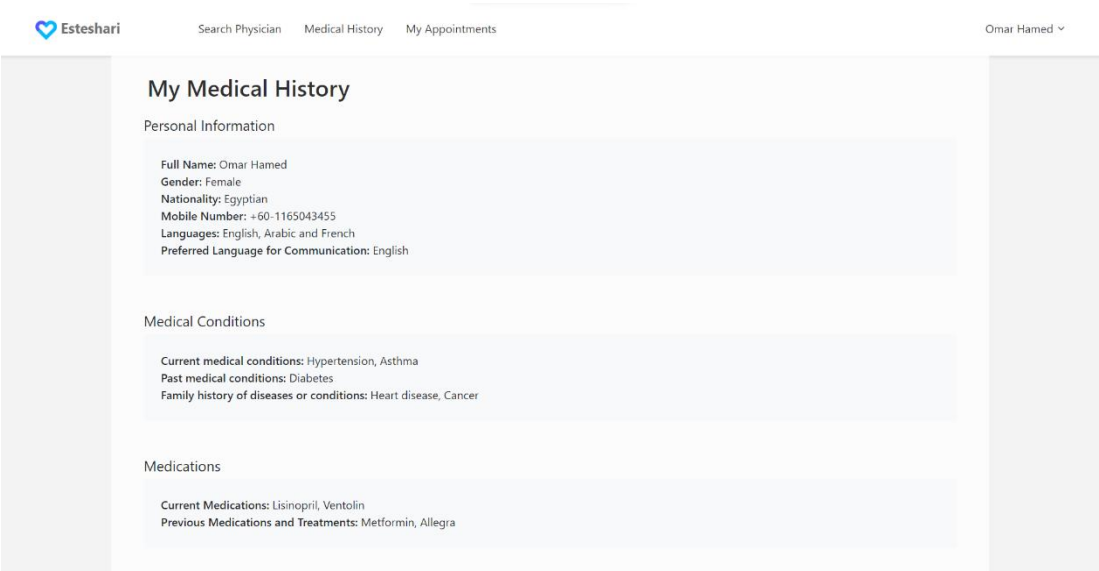

Figure 4.58 Medical History View Page (A)

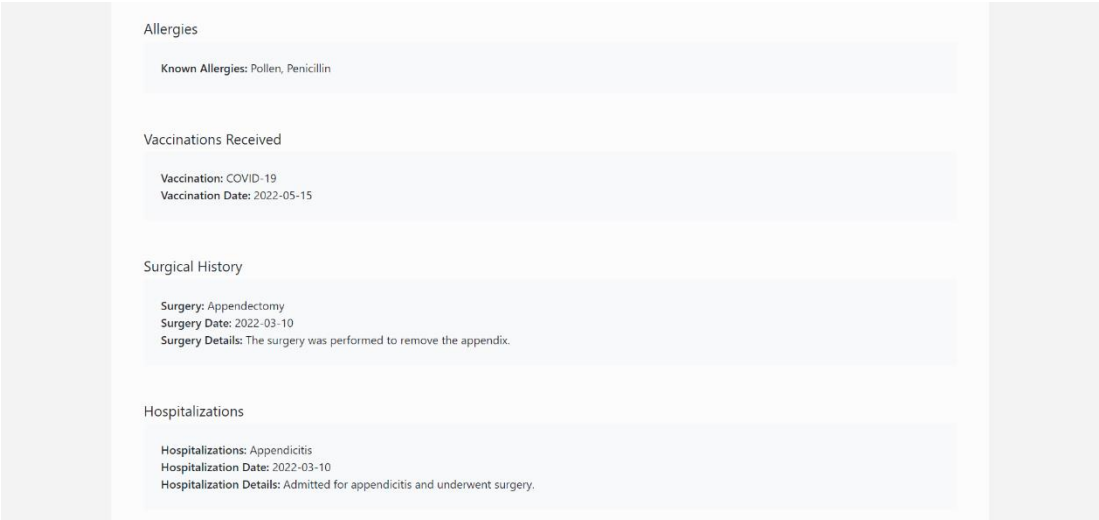

Figure 4.59 Medical History View Page (B)

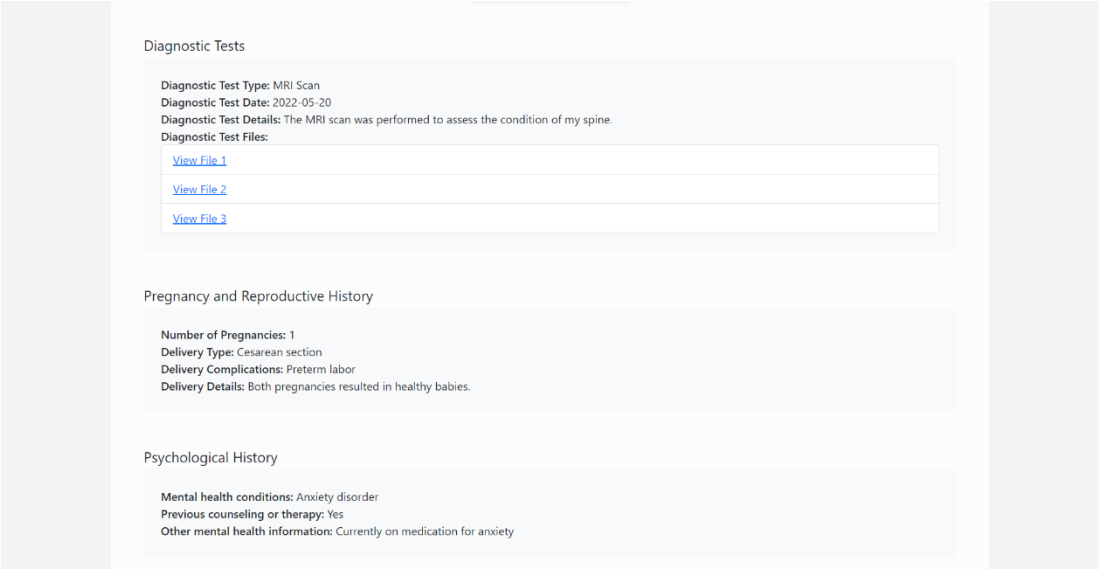

Figure 4.60 Medical History View Page (C)

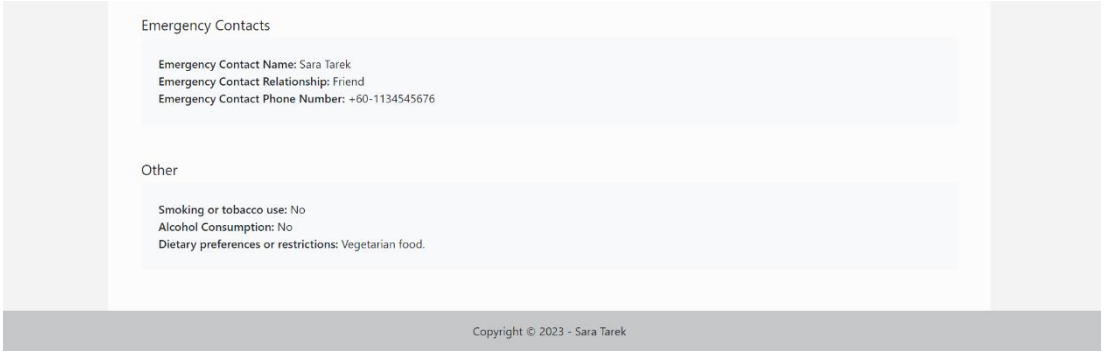

Figure 4.61 Medical History View Page (D)

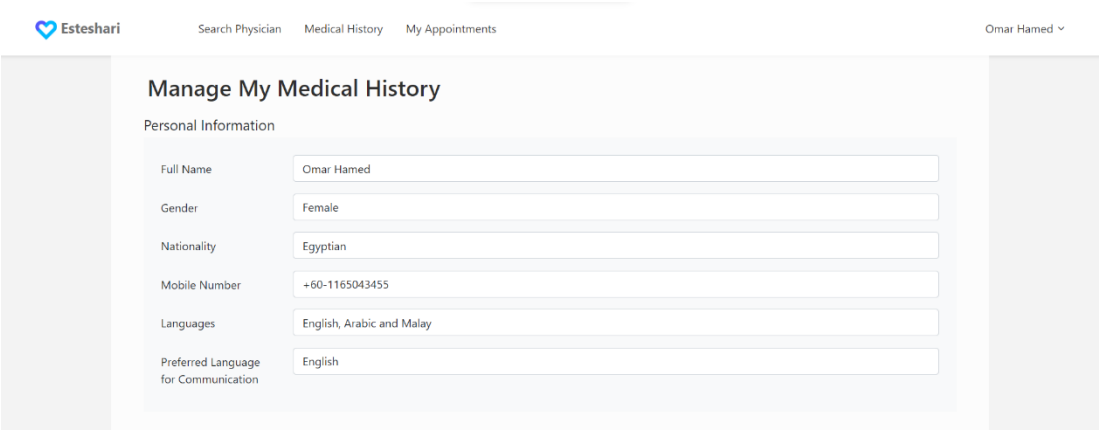

Figure 4.62 Medical History Manage Page (A)

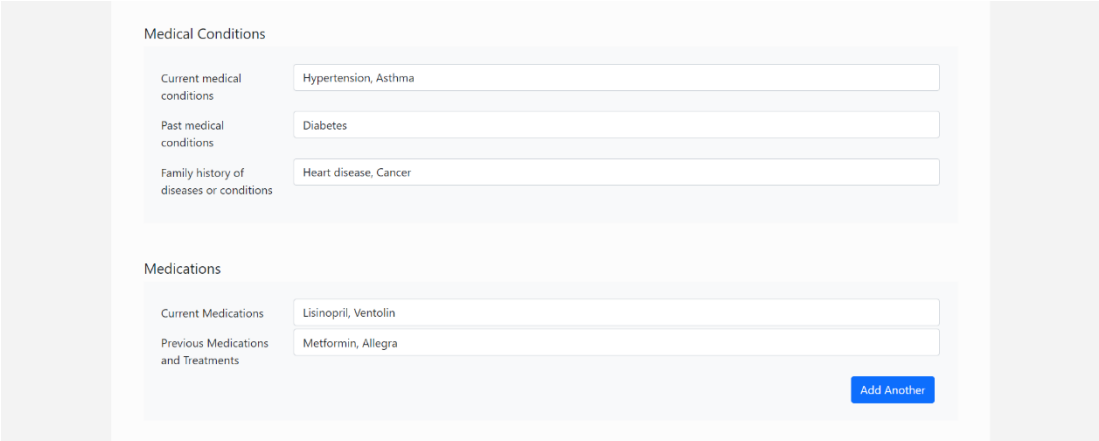

Figure 4.63 Medical History Manage Page (B)

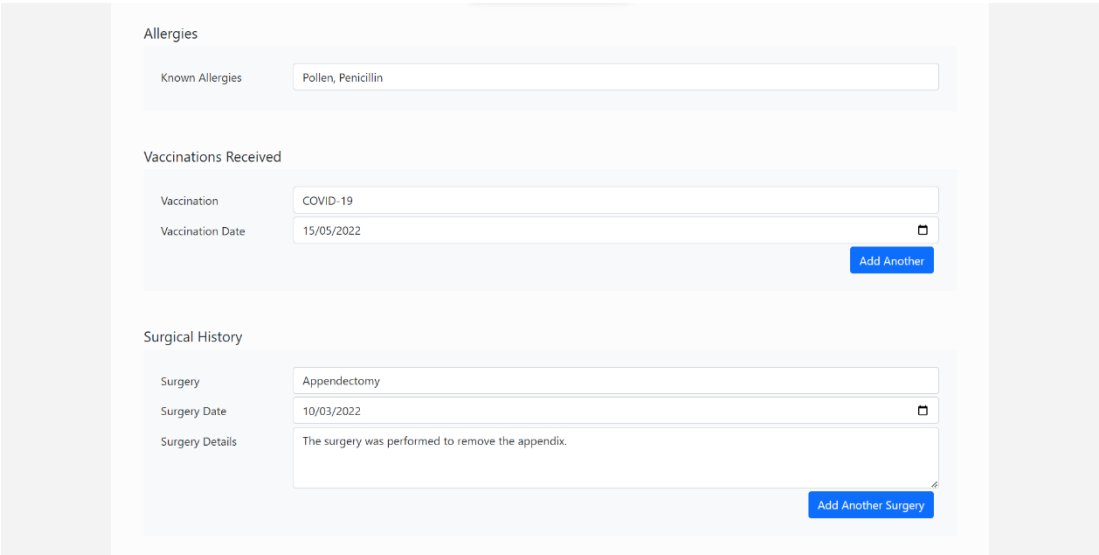

Figure 4.64 Medical History Manage Page (C)

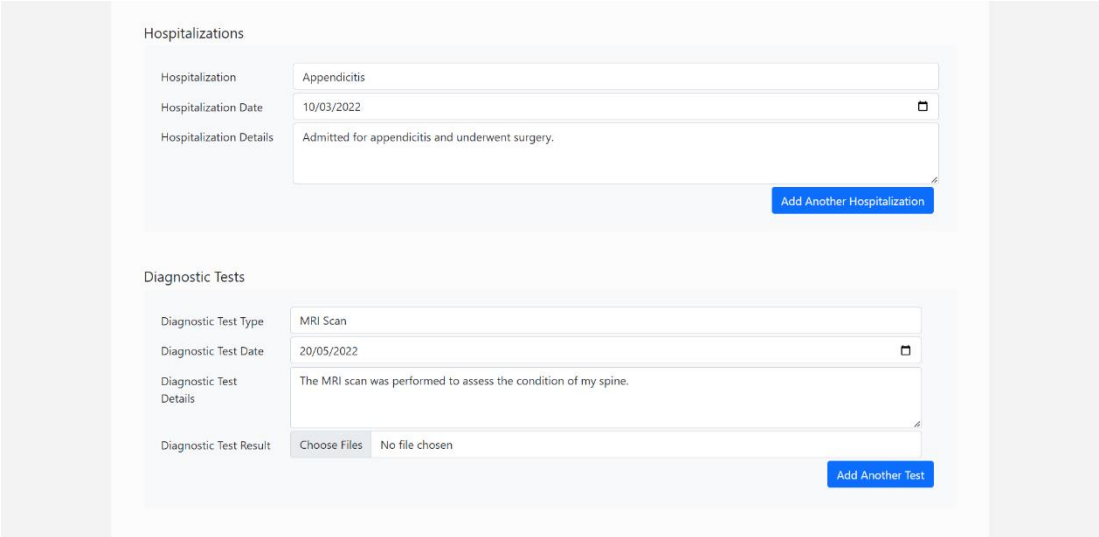

Figure 4.65 Medical History Manage Page (D)

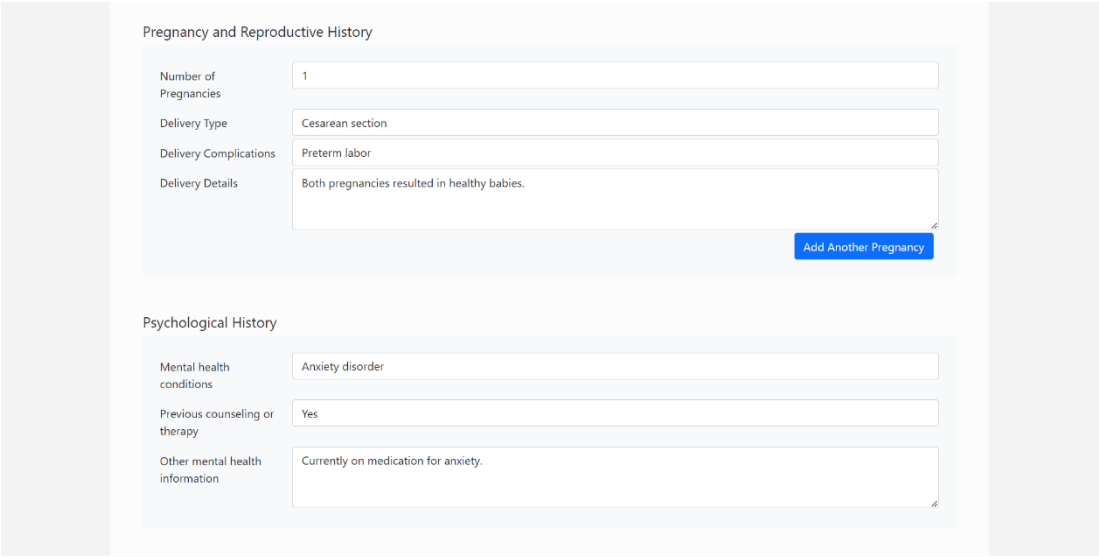

Figure 4.66 Medical History Manage Page (E)

Figure 4.67 Medical History Manage Page (F)

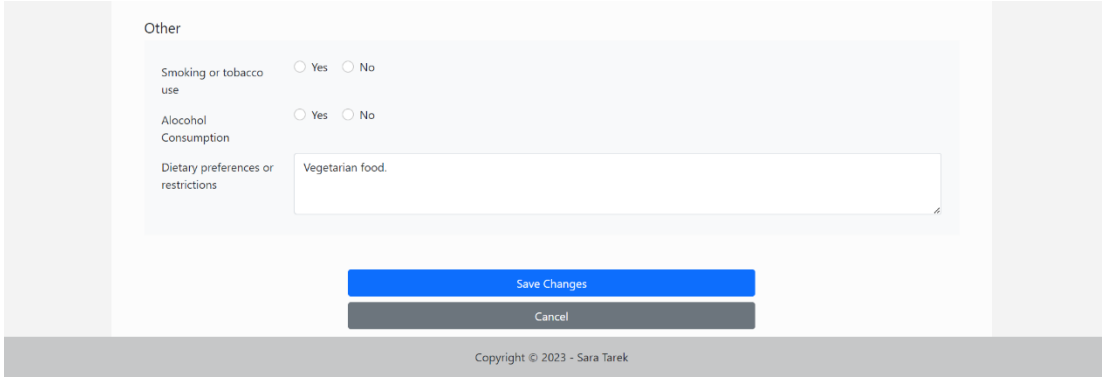

Figure 4.68 Medical History Manage Page (G)

4.3.2.13 View Approved Physicians List

The Esteshari Telemedical System (ETS) offers patients the convenience of viewing a list of approved physicians within the system through the "View Physicians List" feature. This functionality empowers patients to explore and select healthcare providers based on their specific needs and preferences. To access the "View Physicians List" feature, patients can simply navigate to the corresponding option in the menu after logging into their ETS account. Upon selecting this option, patients are presented with a page that displays a well-organized list of approved physicians as shown in Figure 4.69.

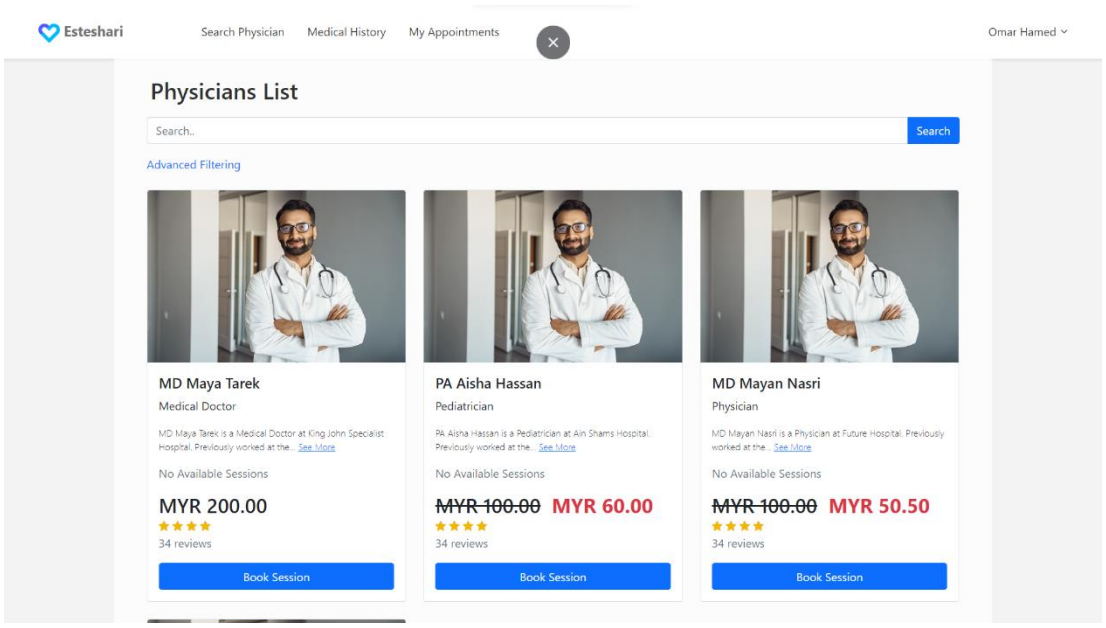

Figure 4.69 Physicians List Page

The physicians list provides valuable information to help patients make informed decisions. Each physician's entry includes details such as their designation, title, specialization, and a brief description of their background and expertise. Patients can gain insights into the healthcare providers' qualifications and professional attributes, enabling them to choose a physician that best aligns with their healthcare requirements.

Additionally, the physicians list presents important information about the availability of sessions with each physician. Patients can view the next available session, session cost, and any discounted prices, if applicable. This allows patients to consider the scheduling and financial aspects when making their selection.

To facilitate ease of navigation, the ETS platform offers filtering and search capabilities within the physicians list as shown in Figure 4.70. Patients can apply filters to refine their search based on criteria such as specialization, availability, or session cost. Furthermore, a search function allows patients to enter specific keywords or criteria to find physicians that match their preferences more precisely.

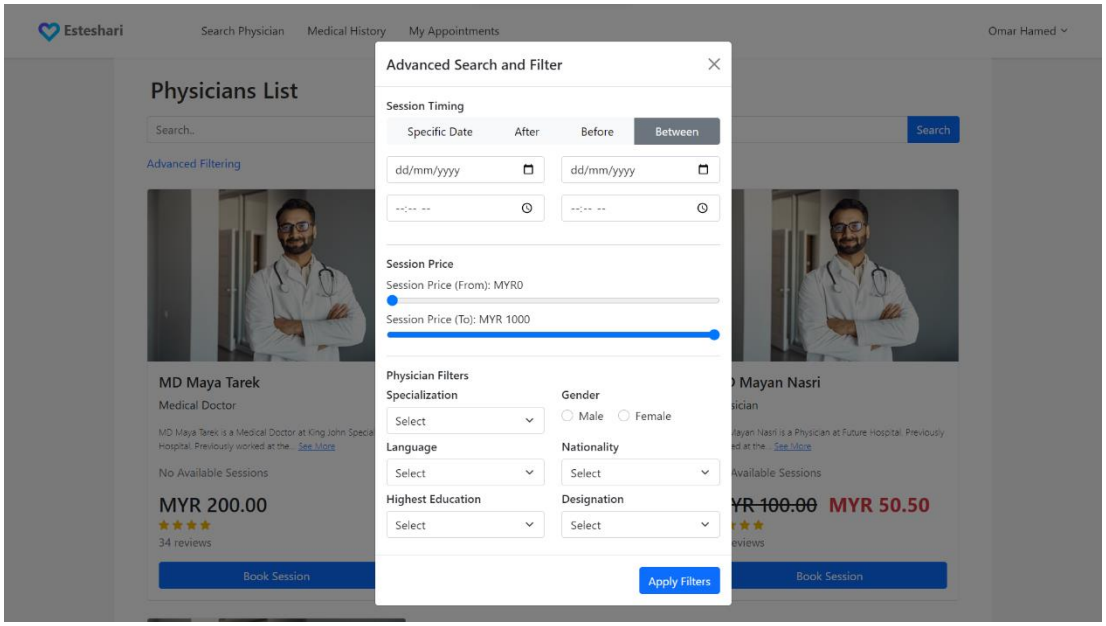

Figure 4.70 Physicians List Page – Advanced Search and Filter

Once patients have identified a suitable physician, they have the option to book a session directly from the physicians list page. By clicking on the "Book Session" button, patients can initiate the process of scheduling a consultation with the chosen healthcare provider, streamlining the appointment booking experience.

4.3.2.14 Book an Appointment

The Esteshari Telemedical System (ETS) offers patients the convenience of booking appointments with physicians through the intuitive "Book Appointment" feature. Accessible from the View Physicians List screen, this functionality streamlines the process of scheduling consultations and ensures a seamless experience for patients.

To initiate the appointment booking process, patients can click the "Book Session" button for a specific physician within the View Physicians List screen. This action redirects them to the dedicated "Online Consultation with the Physician" page which is shown in Figure 4.71. Here, patients can review essential information about the physician, including their qualifications, specialization, and availability.

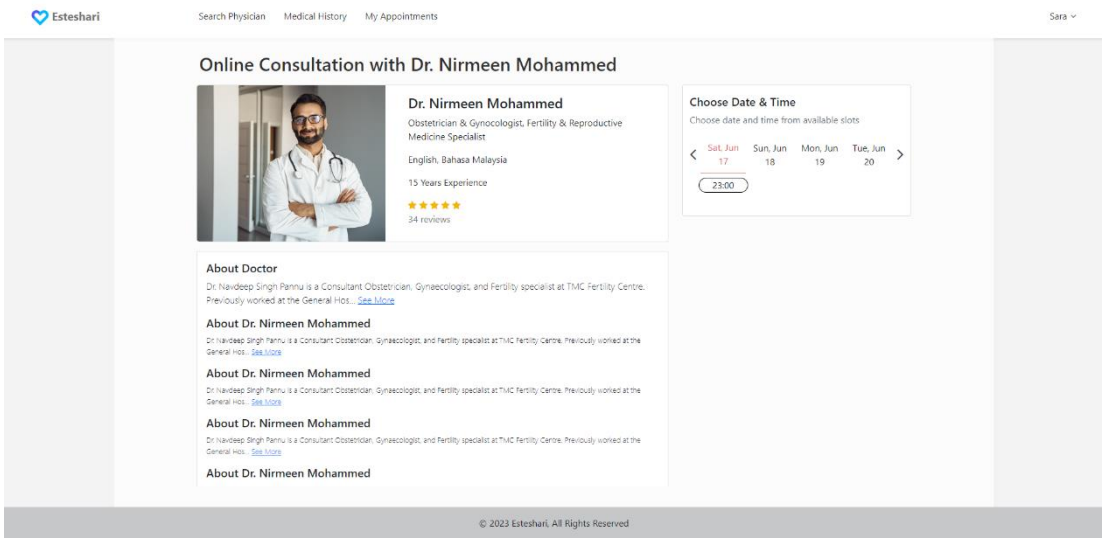

Figure 4.71 Online Consultation Page

On the "Online Consultation with the Physician" page, patients can select a suitable session date and time from the available options provided. The system dynamically updates the availability based on the physician's schedule, ensuring that patients can choose from valid and up-to-date time slots.

After selecting and confirming their desired appointment slo as shown in Figure 4.72, the system performs a check to verify if the patient has filled in their medical history. The completion of the medical history form is a prerequisite to ensure that the physician has access to relevant patient information for the consultation. If the medical history has not been filled, the system prompts the patient to complete this step before proceeding further.

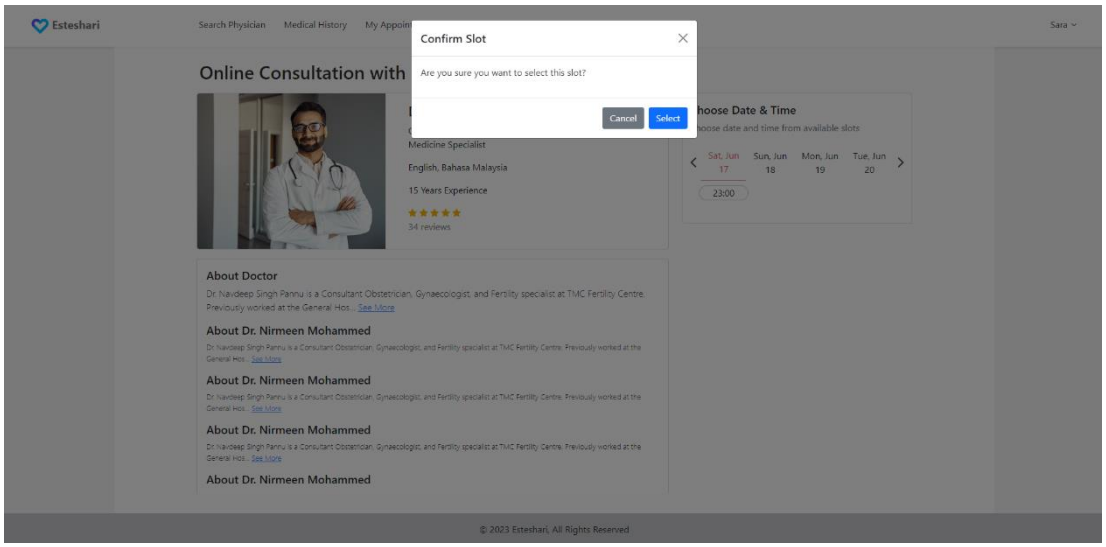

Figure 4.72 Online Consultation Page– Confirmation Prompt

Once the medical history is filled, the patient is directed to the complaint form as shown in Figure 4.73. The complaint form allows the patient to provide specific details about their condition, including symptoms, severity, medications, and any relevant information that can assist the physician in better understanding their situation.

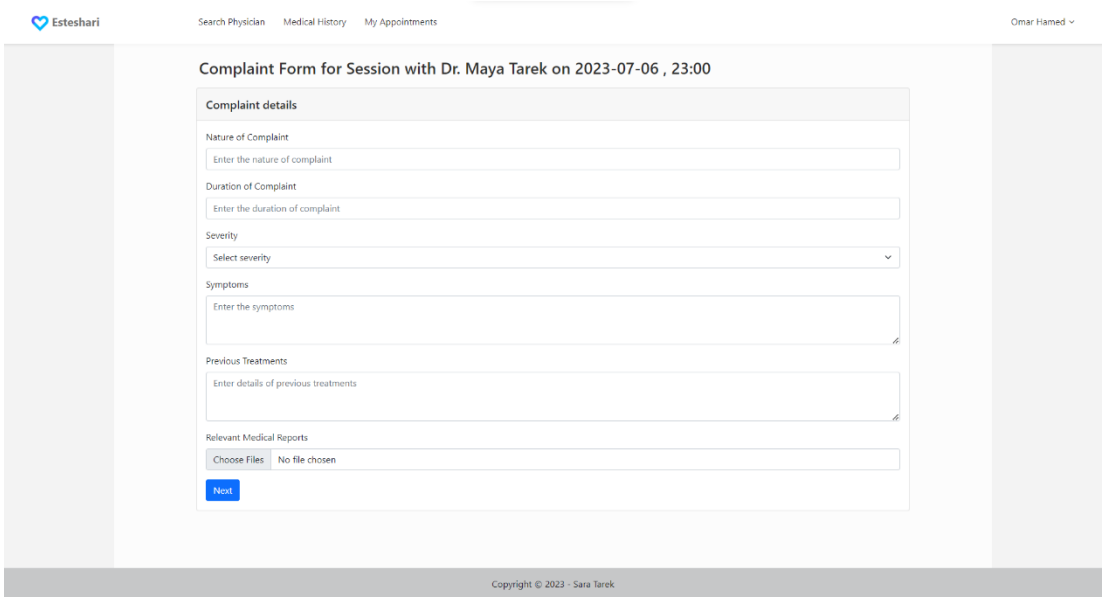

Figure 4.73 Complaint Form

After submitting the complaint form, the patient is directed to the payment page to complete the booking process as shown in Figure 4.74. The payment page ensures a secure and seamless transaction for the patient. Once the payment is successfully processed, a confirmation message is displayed to acknowledge the successful booking. Simultaneously, notification emails are sent to both the patient and the physician, providing them with the necessary details and confirming the appointment. Figure 4.75 displays a sample of the email sent to the physician, while Figure 4.76 displays a sample of the email sent to the patient.

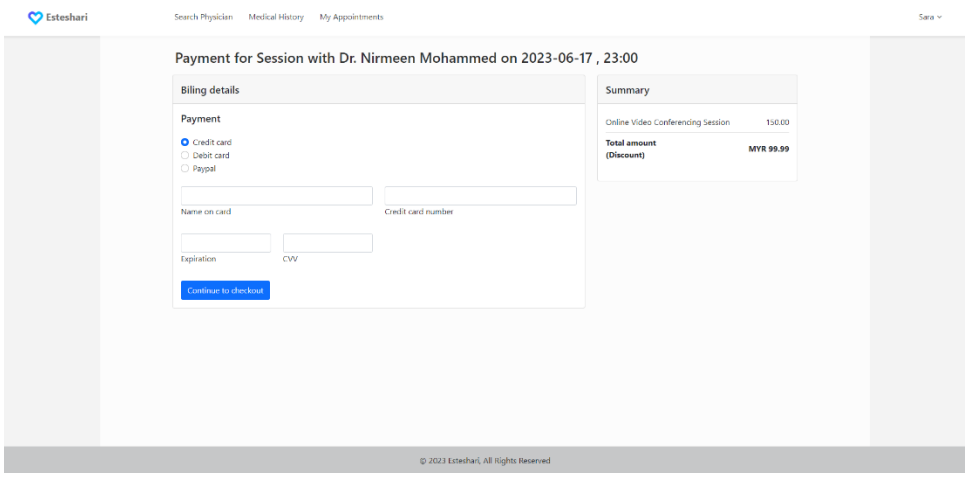

Figure 4.74 Payment for Session Page

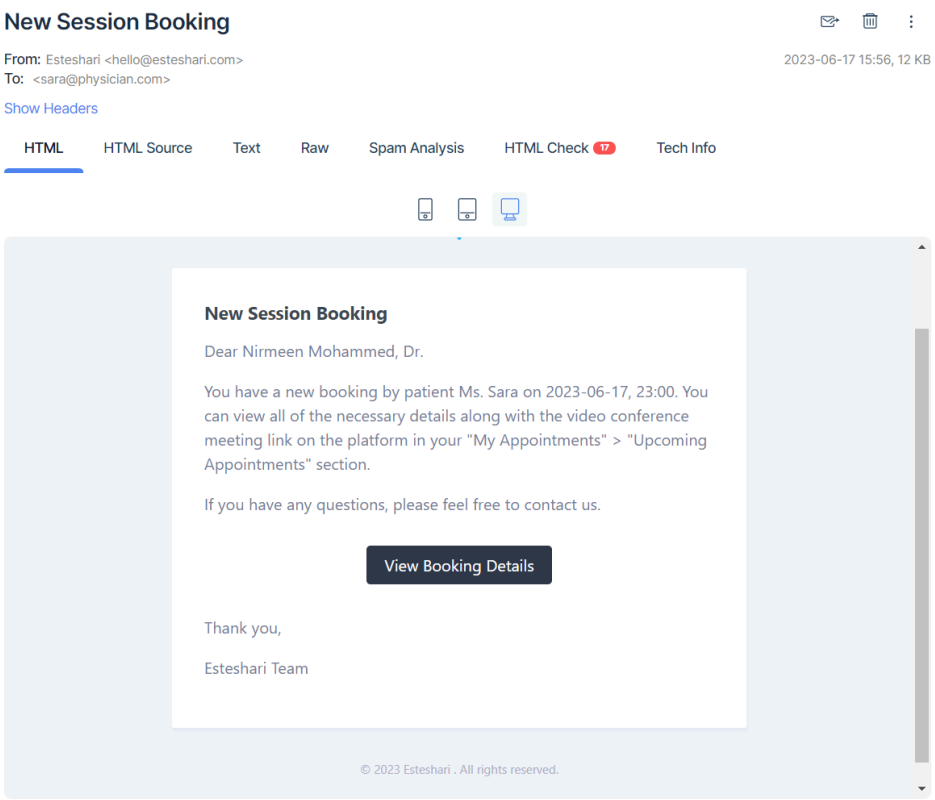

Figure 4.75 New Session Booking Email for Physician

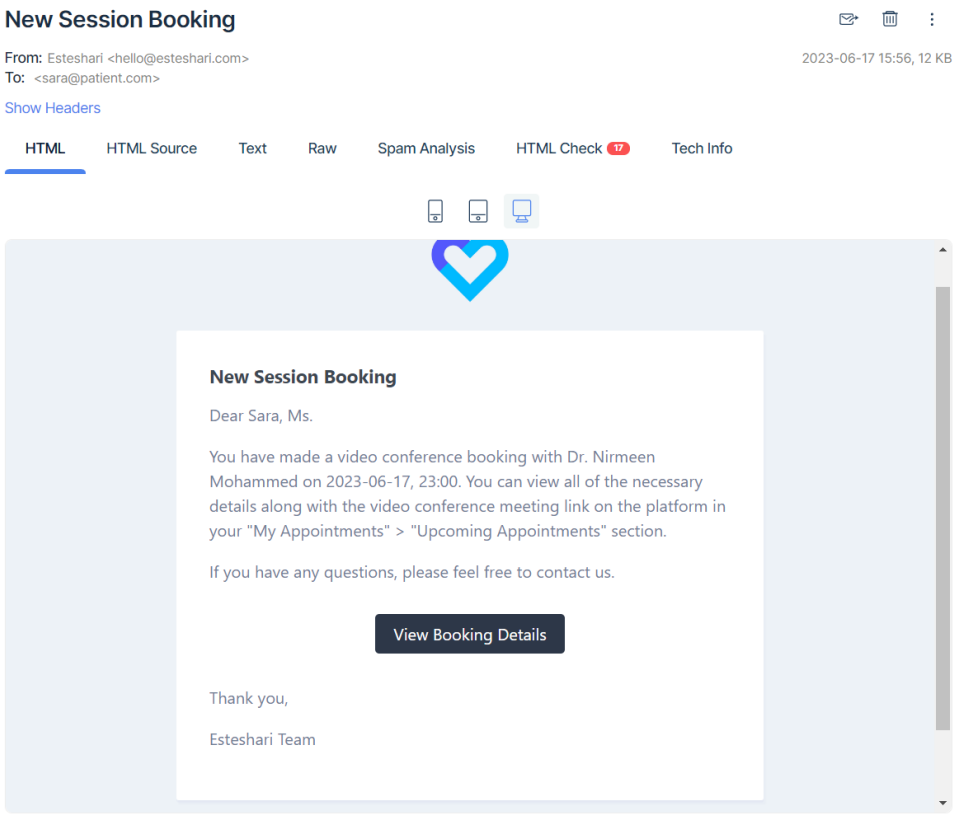

Figure 4.76 New Session Booking Email for Patient

Finally, the patient is redirected to the "Upcoming Appointments" page, where they can view and manage their scheduled appointments. This page serves as a centralized hub for patients to stay informed about their upcoming consultations, ensuring they are well-prepared for their telemedical sessions.

4.3.2.15 View Upcoming Appointments

The Esteshari Telemedical System (ETS) offers a convenient "View Appointments" feature for both physicians and patients to access and manage their upcoming appointments. This functionality allows users to stay informed about their scheduled consultations and ensures a seamless experience for both healthcare providers and patients.

Users can access the "View Appointments" feature by selecting the "Upcoming Appointments" option from the menu within their respective user interface. Upon accessing this feature, the page displays a list of upcoming appointments associated with the user's account. Figure 4.77 represents the upcoming appointments page from the physician's view, and figure 4.78 displays the page from the patient's view.

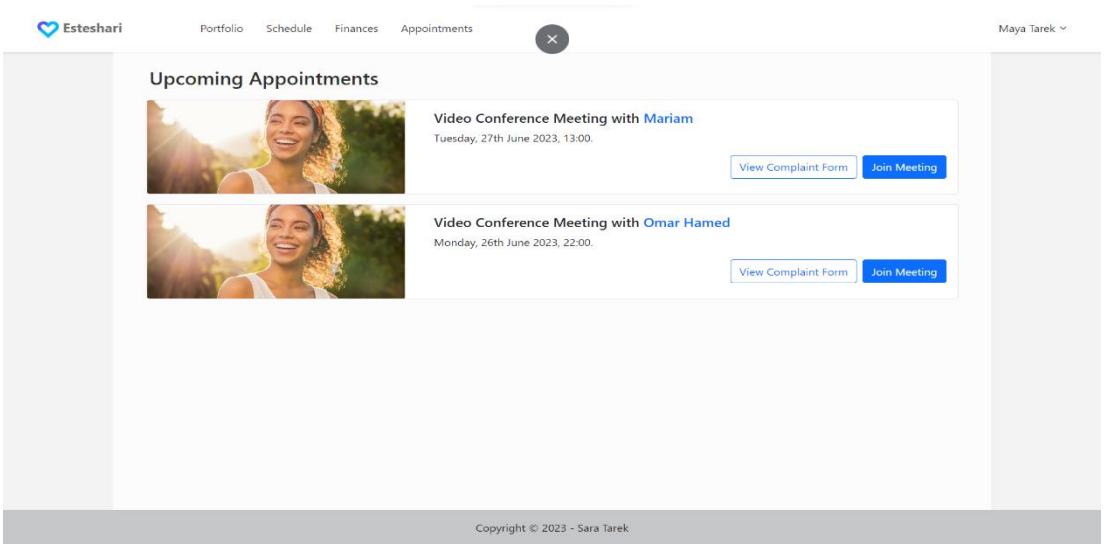

Figure 4.77 Upcoming Appointments Page – Patient View

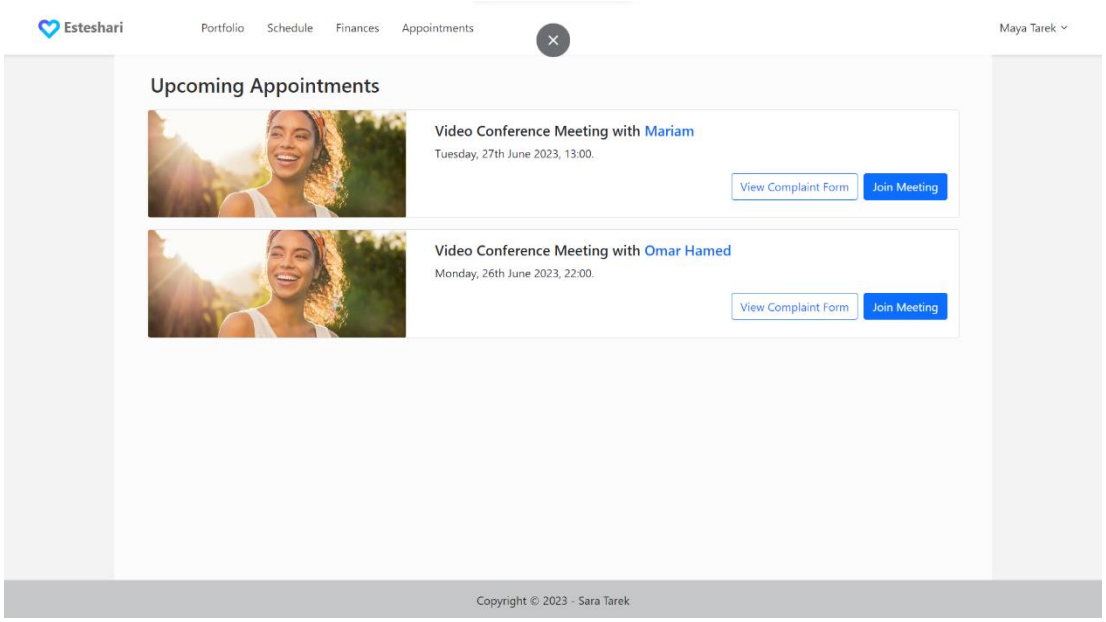

Figure 4.78 Upcoming Appointments Page – Physician View

For patients, the list includes appointment details such as the date and time of the meeting, as well as the name of the corresponding physician. This allows patients to easily keep track of their scheduled consultations and be prepared for their upcoming sessions.

Similarly, for physicians, the list displays the scheduled appointments with relevant information, including the date and time of the appointment and the name of the patient. This enables physicians to stay organized and ready for their telemedical sessions, ensuring efficient time management and effective patient care. The physicians can also view the patient's filled-in complaint form along with their medical history as displayed in Figures 4.79 and 4.80 consecutively.

In addition to the appointment details, each entry in the list is accompanied by a "Join Meeting" button. This button provides a convenient and direct link to access the scheduled meeting or consultation. By clicking on the "Join Meeting" button, users can effortlessly connect to the virtual meeting room or video conferencing platform, enabling seamless communication and collaboration.

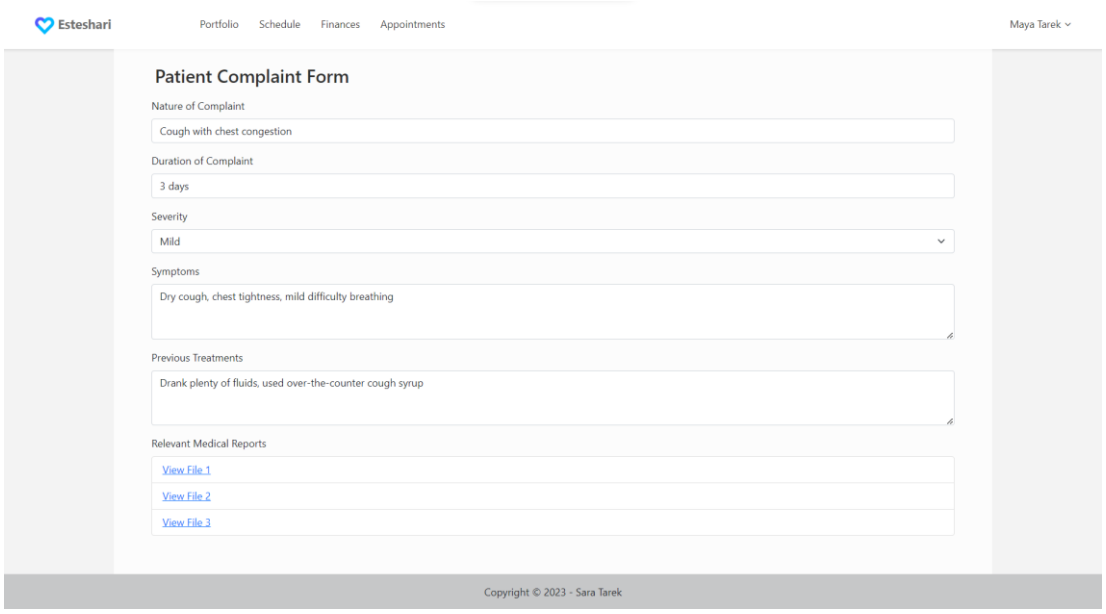

Figure 4.79 Patient Complaint Form Page – Physician View

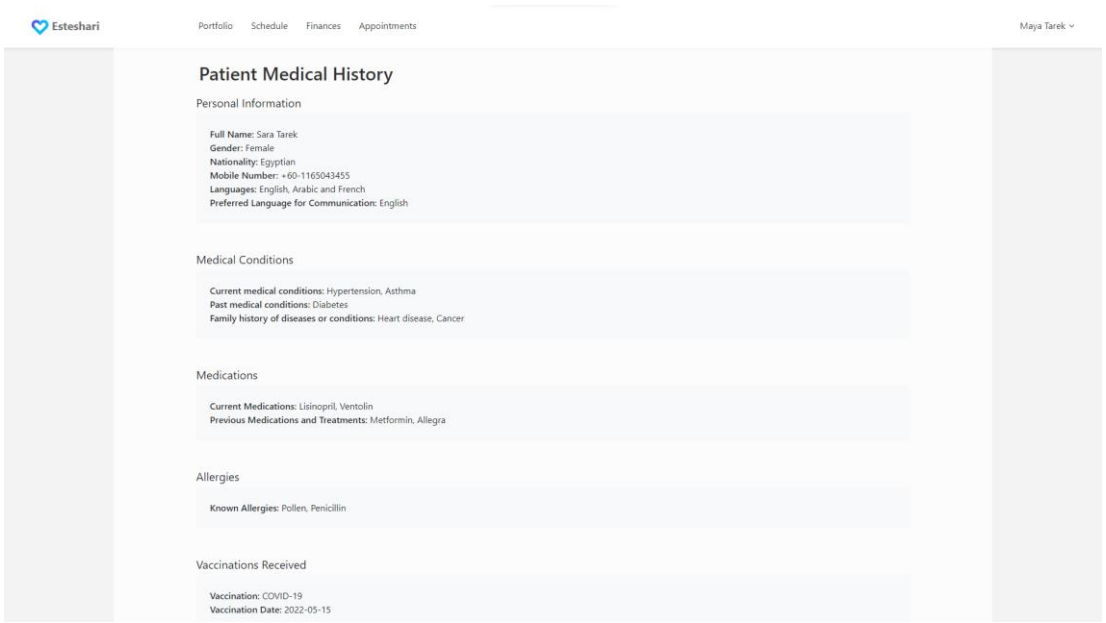

Figure 4.80 Patient Medical History Complaint Form Page – Physician View

In an alternative scenario, the ETS also provides an "Appointment History" section, where users can view all their appointments, including past ones. This overview allows users to review their entire appointment history and access relevant information about previous consultations. Figure 4.81 displays the Appointment History from the patient's view, and Figure 4.82 displays they view from the physician's side.

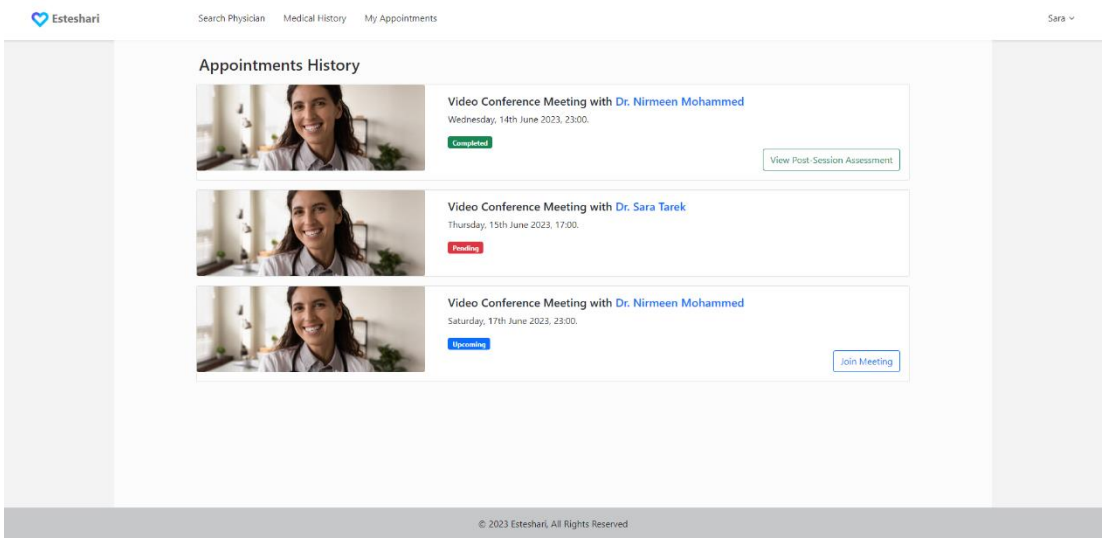

Figure 4.81 Appointments History Page – Patient View

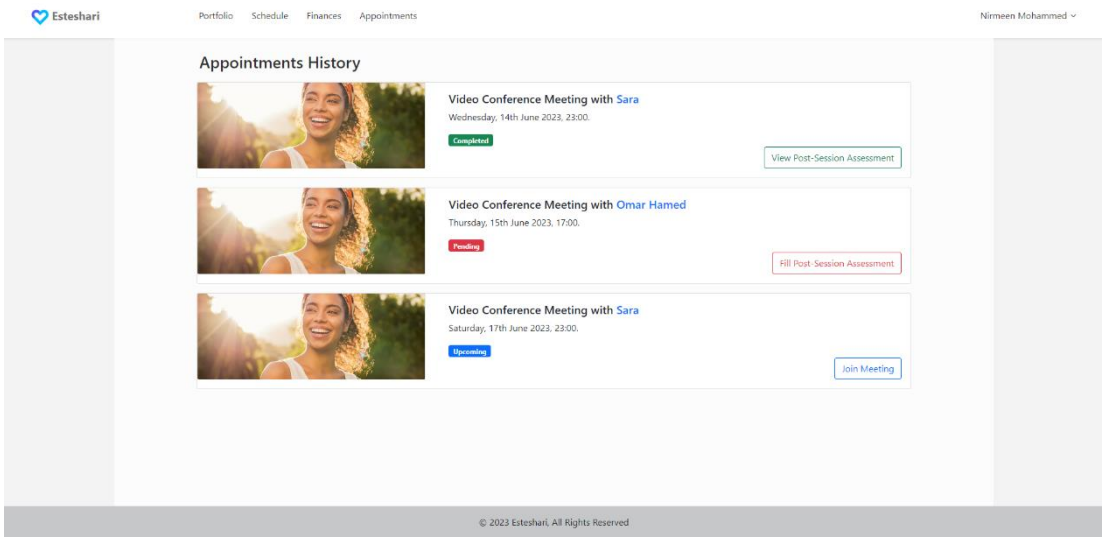

Figure 4.82 Appointments History Page – Physician View

4.3.2.16 Join Appointments

The Esteshari Telemedical System (ETS) includes a convenient "Join Appointments" feature that enables both physicians and patients to seamlessly join their scheduled appointments. This functionality enhances the telemedical experience by providing a direct and effortless way to connect and engage in virtual consultations.

When a user, whether a physician or a patient, clicks on the "Join Meeting" button, the system opens a new tab or window, which launches the Zoom Cloud Meetings application as shown in Figure 4.83. The Zoom platform is utilized as a reliable and widely used video conferencing solution for conducting remote medical consultations.

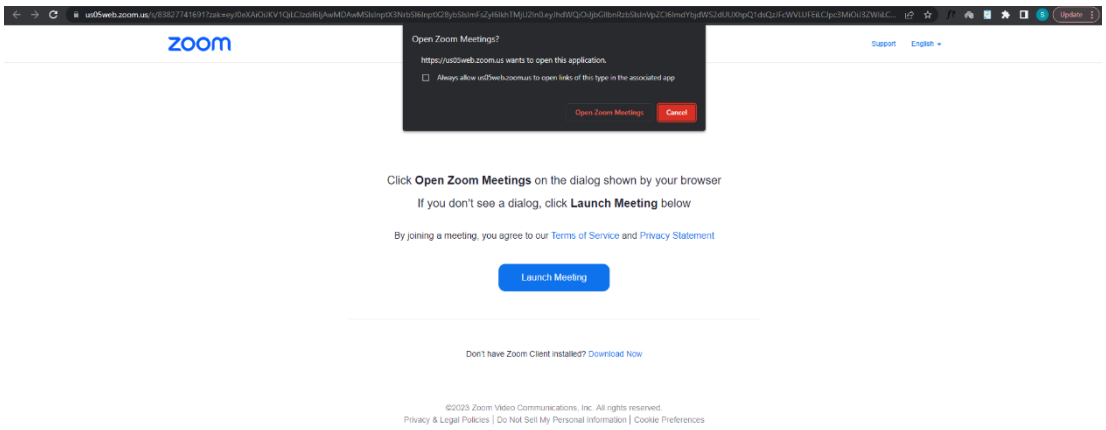

Figure 4.83 Open Zoom Meetings Page

Each appointment within ETS is assigned a unique meeting key that corresponds to the scheduled date and time of the appointment. This ensures that the user is directed to the correct meeting room associated with their specific appointment. By utilizing Zoom Cloud Meetings, ETS offers a secure and user-friendly environment for physicians and patients to engage in virtual consultations. The platform supports various features such as high-quality video and audio communication, screen sharing capabilities, and interactive collaboration tools.

The integration of Zoom Cloud Meetings into the ETS system allows for a seamless and efficient telemedical experience. Physicians and patients can easily connect to their scheduled appointments, fostering effective communication and facilitating the exchange of medical information, diagnoses, and treatment plans.

4.3.2.17 Post-session Form

The Esteshari Telemedical System (ETS) provides the "View Post-session Form" feature, allowing both physicians and patients to access and review the filled-in post-session form for a completed appointment. This feature ensures transparency and facilitates effective communication between healthcare providers and patients.

After a consultation has taken place, the patient can view post-session form that has been filled in by the physician, which displays the recorded information from the session, including the probable diagnosis, treatment plan, follow-up recommendations, and any additional notes entered by the physician as displayed in Figure 4.84.

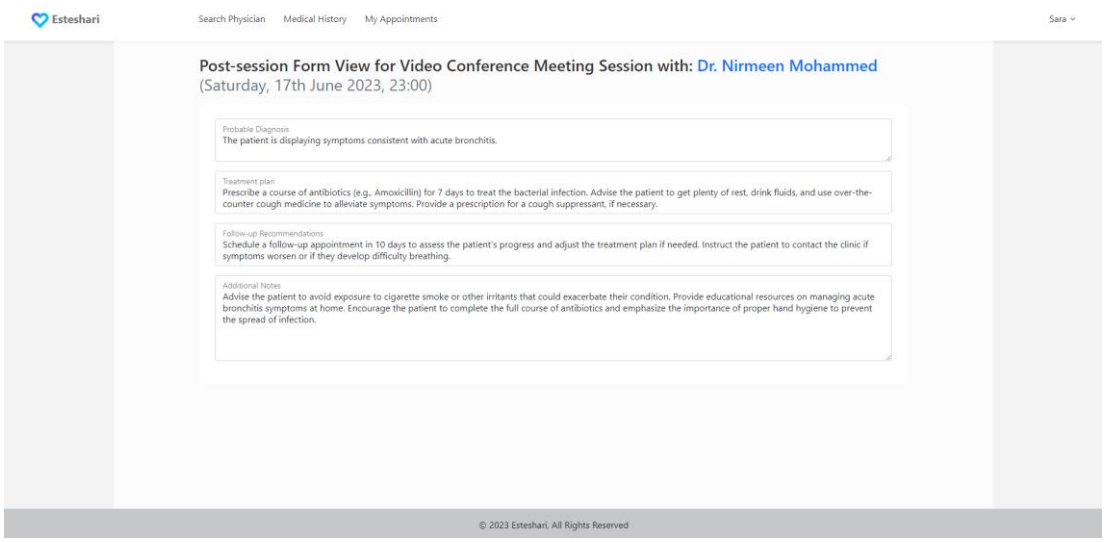

Figure 4.84 View Post-session Form Page – Patient View

For physicians, accessing the post-session form as displayed in Figure 4.84 enables them to review the details discussed during the appointment, ensuring they have an understanding of the patient's medical condition, prescribed treatments, and recommended follow-up actions. This information serves as a reference for subsequent consultations and aids in providing consistent and personalized care.

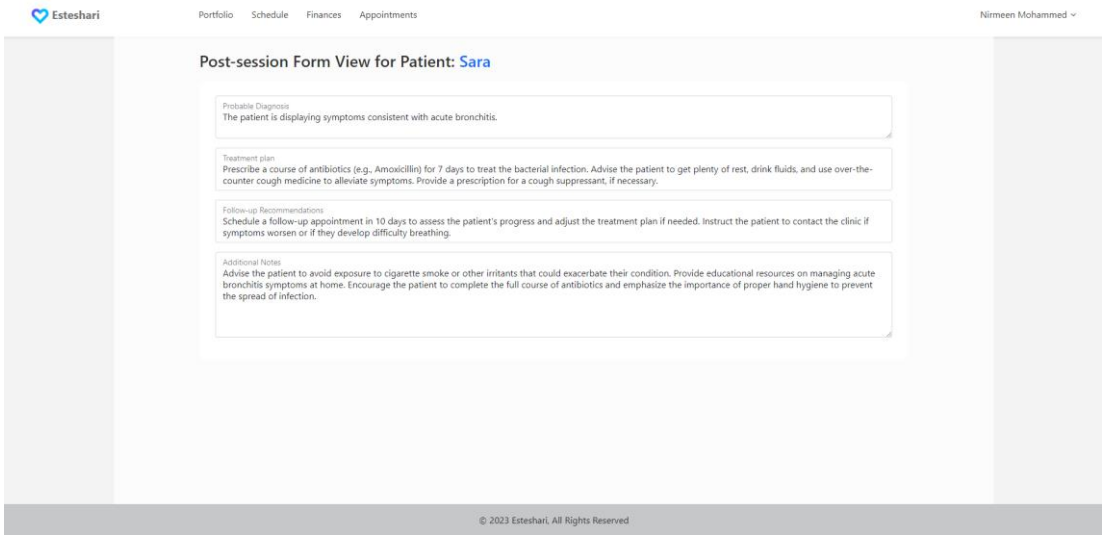

Figure 4.85 View Post-session Form Page – Physician View

Patients, on the other hand, can access the post-session form to review and refer to the information provided by the physician. It empowers patients to stay informed about their diagnosis, treatment plan, and any recommended actions to be taken for their healthcare.

By offering the ability to view the post-session form, ETS promotes transparency and shared decision-making between physicians and patients. It enhances the patient's understanding of their healthcare journey and enables them to actively collaborate with their healthcare providers. Furthermore, it serves as a valuable tool for monitoring progress, tracking treatment plans, and ensuring continuity of care.

The inclusion of the "View Post-session Form" feature in ETS demonstrates the platform's commitment to patient-centered care and effective communication. By providing access to the filled-in post-session form, ETS empowers both physicians and

patients to stay informed, engaged, and actively involved in the management of their health.

4.3.2.18 Change Language

The "Change Language" feature in the Esteshari Telemedical System (ETS) enables users, including patients, physicians, and system administrators, to switch between different language options within the platform. ETS recognizes the importance of language diversity and aims to provide a user-friendly experience for individuals from various linguistic backgrounds.

By accessing the settings or preferences section of their respective accounts, users can locate the "Change Language" option as shown in Figure 4.85. Upon selecting this feature, a dropdown menu or list of supported languages, such as Arabic, English, Chinese, and Malay, will be displayed. Users can then choose their preferred language and apply the changes.

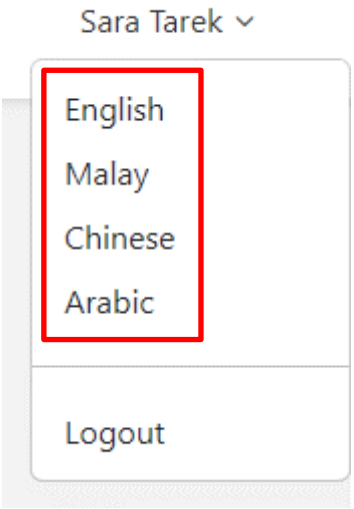

Figure 4.86 Dropdown Menu with the List of Supported Languages

Once the language is changed, the ETS platform will dynamically update its interface and content to reflect the selected language. This includes labels, buttons, menu options, notifications, and any other textual elements present throughout the

system. By offering multi-language support, ETS ensures that users can comfortably navigate and interact with the platform in a language they are most comfortable with. An example of a page in English, Malay, Chinese and Arabic languages is displayed in Figures 4.85, 4.86, 4.87 and 4.88 respectively.

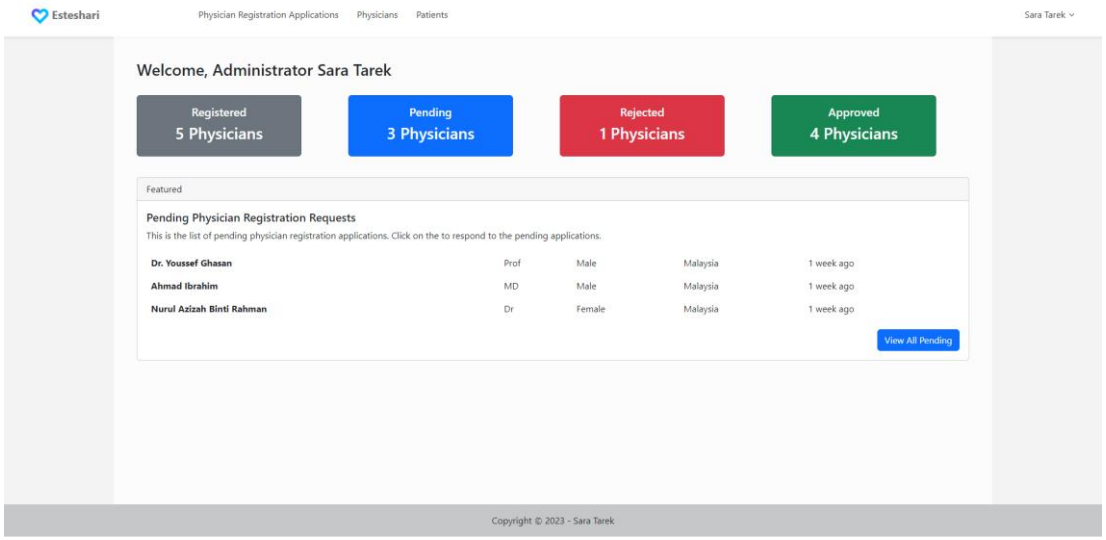

Figure 4.87 English Language View

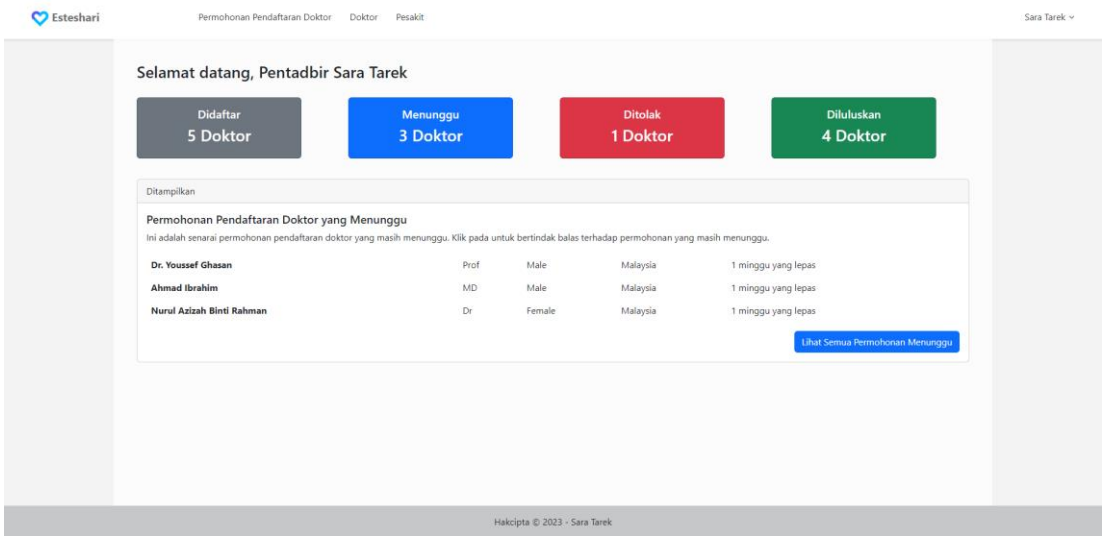

Figure 4.88 Malay Language View

Figure 4.89 Chinese Language View

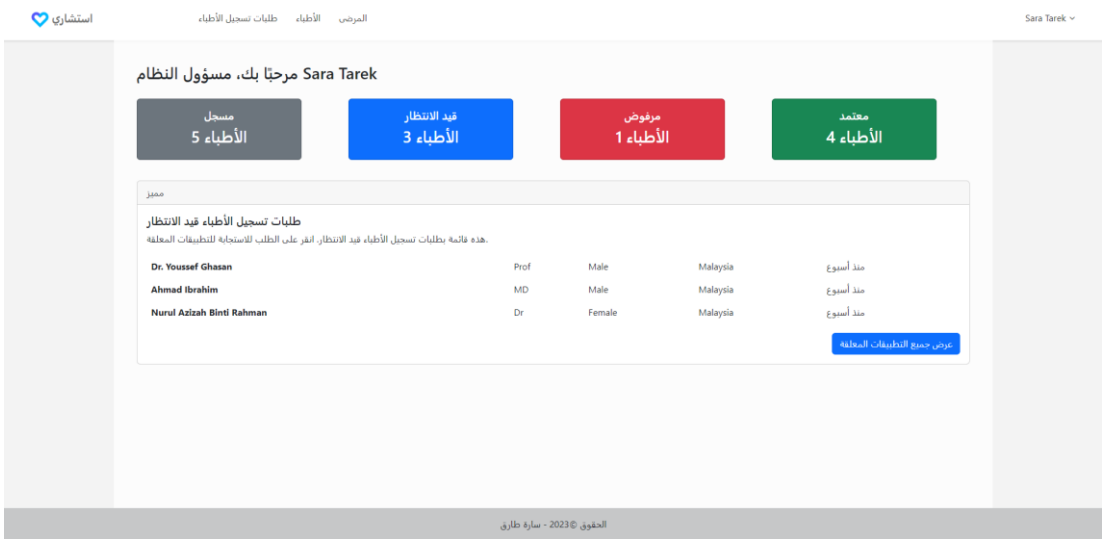

Figure 4.90 Arabic Language View

The "Change Language" feature in ETS enhances user accessibility and inclusivity, enabling a broader range of individuals to effectively utilize the platform's functionalities. It eliminates language barriers and promotes a more personalized and user-centric experience. Whether it is patients seeking healthcare services, physicians managing their profiles, or system administrators overseeing operations, ETS strives to accommodate the diverse language preferences of its users.

The incorporation of multi-language support in ETS showcases the platform's commitment to providing an inclusive and user-friendly environment. By allowing users to seamlessly switch between languages, ETS promotes effective communication, engagement, and access to healthcare services across different linguistic communities.

4.3.2.19 Logout

The "Logout" feature in the Esteshari Telemedical System (ETS) enables users to securely end their session and log out from the system. By selecting the "Logout" option as shown in Figure 4.91, users can ensure the protection of their account and personal information.

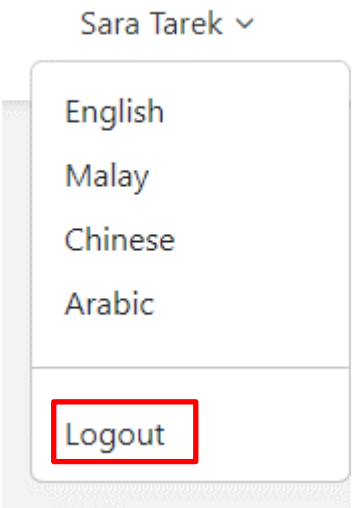

Figure 4.91 Dropdown Menu with the Logout Button

When a user clicks on the "Logout" button, ETS initiates the logout process. The system terminates the user's current session, clears any temporary data or cached information associated with their session, and removes their authentication credentials. This ensures that unauthorized access to the user's account is prevented and that their personal data remains secure.

After successfully logging out, the user is redirected to the homepage of the Esteshari Telemedical System shown in Figures 4.92, 4.93 and 4.94. This serves as a confirmation that the logout process was completed and provides a convenient starting point for future interactions with the system. The "Logout" feature plays a crucial role in maintaining the confidentiality and privacy of user accounts within ETS. By logging out, users can mitigate the risk of unauthorized access if they are using a shared or public device. It also helps to prevent accidental or unintentional access to sensitive information by ensuring that users are logged out after each session.

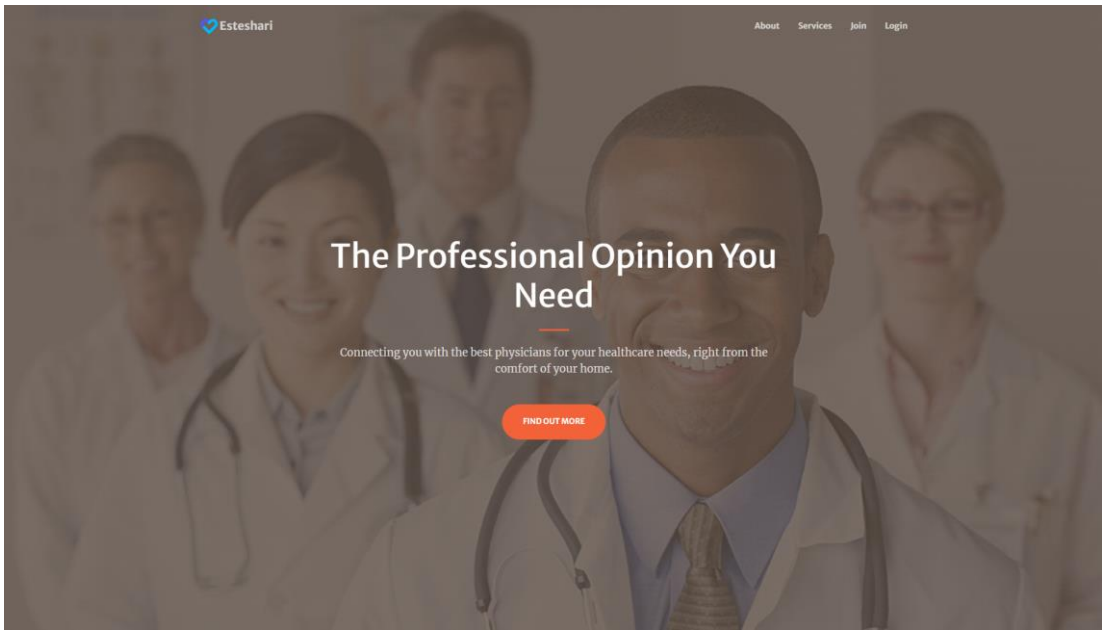

Figure 4.92 Homepage of ETS

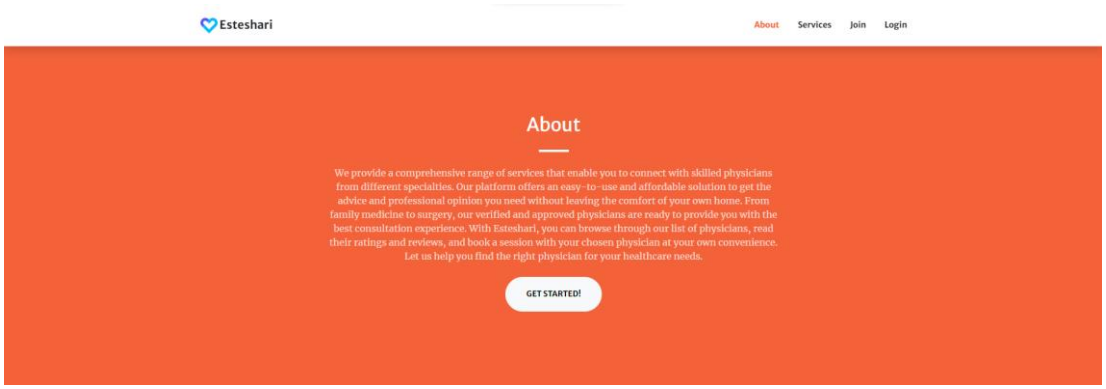

Figure 4.93 Homepage of ETS – About Section

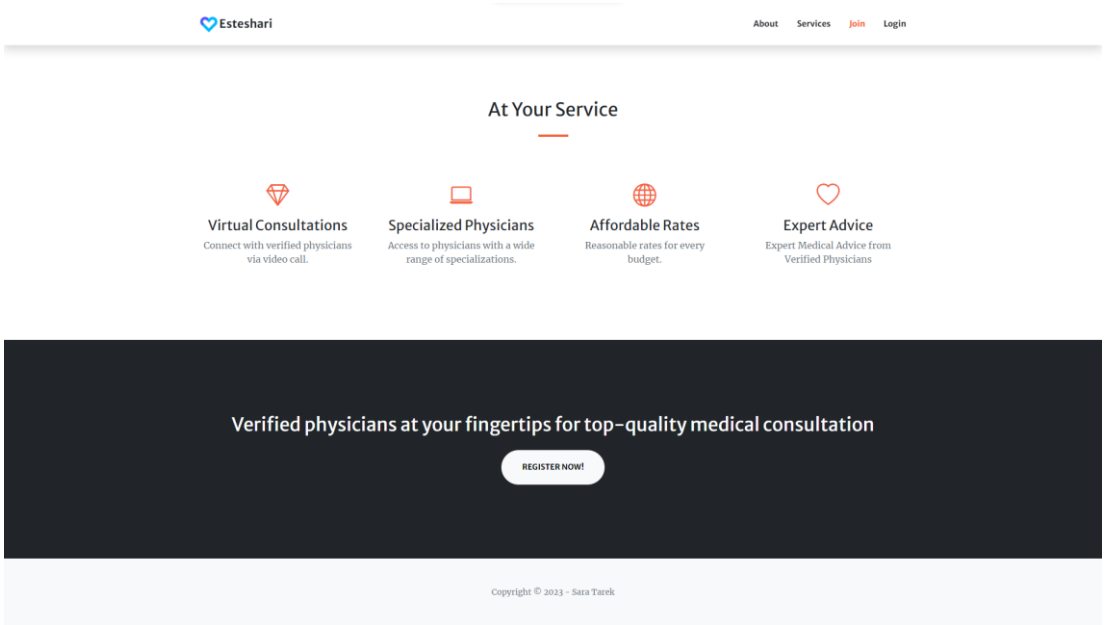

Figure 4.94 Homepage of ETS – Join and Login Sections

4.4 Chapter Summary

Chapter 4 provides a detailed overview of the design and implementation of the Esteshari Telemedical System (ETS). It encompasses the Software Requirements Specification (SRS) documentation, which outlines the system's functionalities and use cases, and the Software Design Document (SDD), which focuses on the system's architecture and design. The chapter highlights the key elements of the SRS, such as use case descriptions and system elements, and delves into the SDD, discussing the system's architecture view and development.